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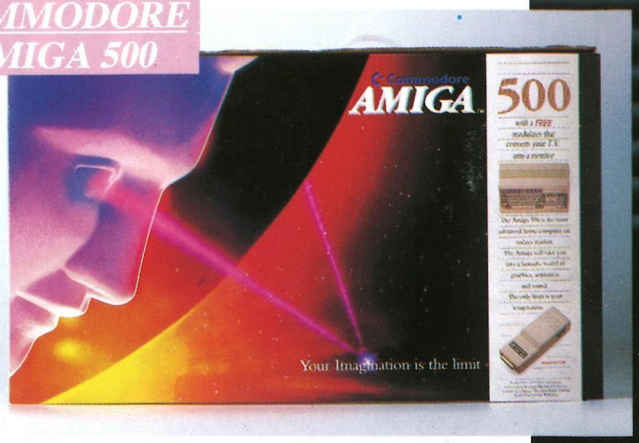

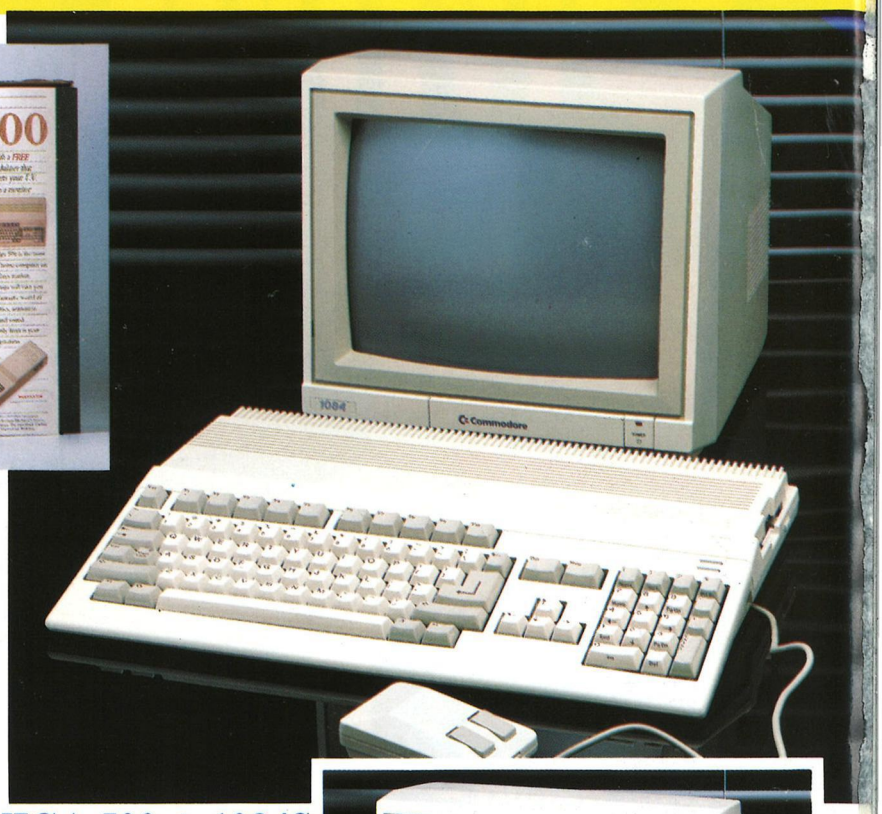

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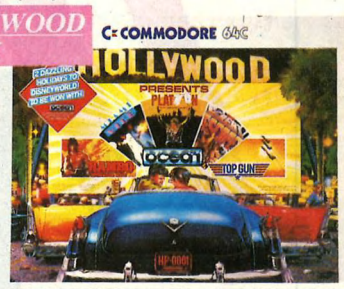

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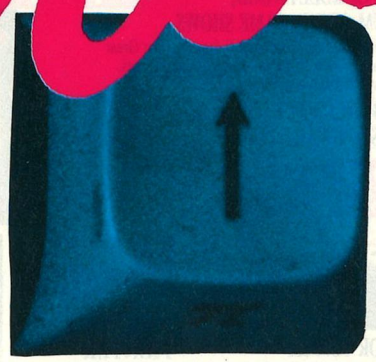

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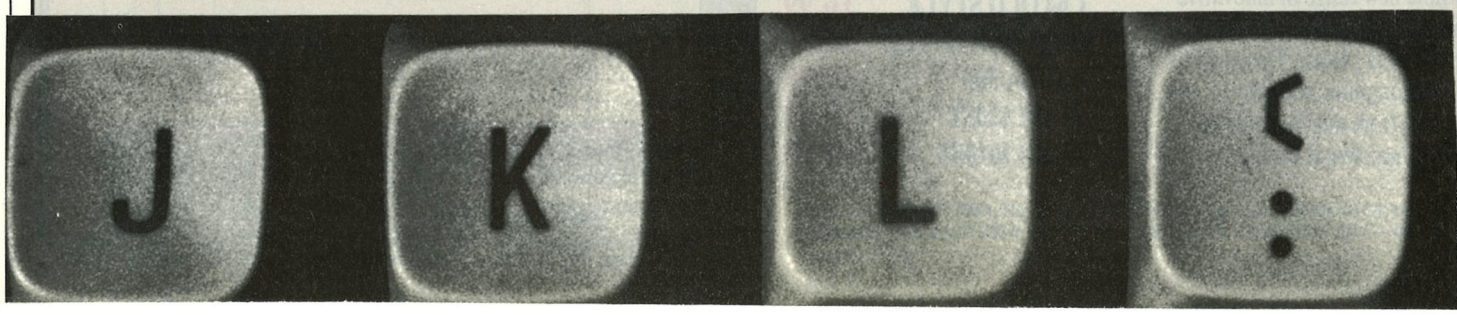

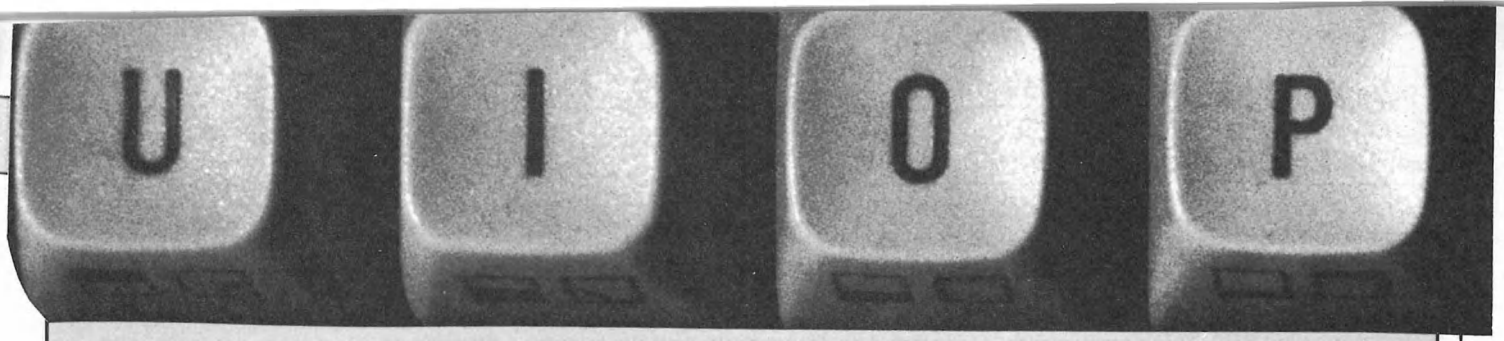

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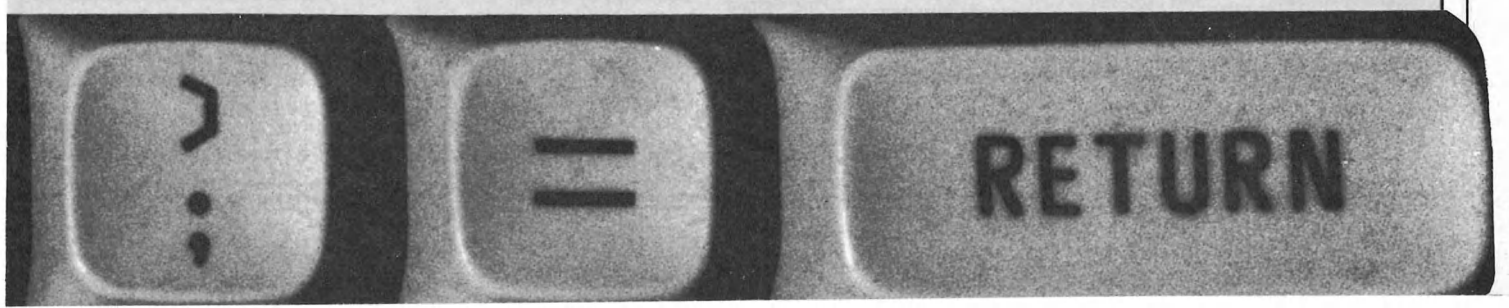

CCI View

Dear CCI Reader,

At the recent Siggraph Computer Graphics Show in the U.S.A. there was a computer called RB2. This acronym was short for Reality Built for Two - a more exciting name than C64... This ambitious machine, from a company called VPL, comprised a pair of goggles with TV screen eyepieces and a wired up glove. "The EyePhone" and "The DataGlove" were designed to capture sensory data from the head and hand movements of the wearer. They controlled the computer-generated pictures seen on the "EyePhone" as the user swivelled on a stool. Our representative says that the effect was extremely realistic - like a very superior flight simulator.

Some time ago, a *CCI* staffer saw a similar device, of all places, on a Kenny Everett TV comedy show. Excited by the idea of revealing this hot new computer development to our readers, we contacted the TV production company only to be told that it had been a complete fake and "just one of Kenny's crazy ideas". So much for "as seen on TV" reality... Well, it appears from the Siggraph exhibit that Kenny Everett was not so crazy after all.

A world famous psychiatrist, R.D. Laing, who died recently, once stated that insanity was a sane response to an insane world. He would certainly have found some interesting evidence in the field of computers.

Crazy ideas, in computers or elsewhere, may just seem crazy because they do not fit with our idea of normality from our vantage point in time and possibly place. For example, again and again I have heard people speak as if no one were interested in computers except the businessman with his spreadsheet and the scientist with his mainframe. Yet there are literally millions of computers in the U.K. alone, most of them in private homes and used for all sorts of purposes.

One thing I believe crazy is the many different operating systems with which we are afflicted. Computers will not be universally accepted or seen as universally user friendly until the operating systems are regarded as, for example, petrol is to cars today. The brand of automobile may differ but the petrol on which it runs is essentially the same and therefore applicable to virtually all cars.

I was made especially aware of the absurd situation of similar type of computers using totally different systems recently when at a friends home I was requested as a "computer expert"(!) to help resolve a difficulty in getting a software package to run on a BBC micro, not a computer with which I have a great deal of experience. The package turned out to be Mini-Office, which I have used on the C64.

While there are obvious similarities between any computer, it took me some time to find my way among the differing commands required - far more time than it would have taken to drive an unfamiliar car.

The BBC micro suffers from the same disadvantage as the late Oric, Enterprise and even the still extant MSX computers: it only achieved a local and in global terms uncommercially small market and it is now suffering from that limitation. I heard the other day of a software house being begged by a distributor to put games on the BBC format. As no games are being created for the BBC and children in particular are losing interest in it, the lack is seen as one of the reasons for the BBC computer dying out. The universality of the C64 has made it immune to that disease.

Not only is there still a plentiful supply of games but there is still other software too, even if not too much new is appearing. And in spite of its often prophesised demise, I am confidently assured by knowledgeable computer industry figures that the C64 will, at least in the U.K., be the leading home computer in sales this Christmas. Probably about 100,000 will be bought.

I also hear that Commodore's tentative plan to launch an upgraded C64 with 256K and incorporating a 3 1/2" drive is likely to be abandoned. The story is that Commodore just does not believe it has the huge resources to go head-to-head with Nintendo in the U.S.A. That is a pity because such a computer at a reasonable price would almost certainly find a warm welcome in Europe, which of course is where CBM sees its biggest sales of Amigas.

While Commodore's nervous path may sometimes leave us puzzled and even saddened, it is usually possible to see the business reasons that lie behind the decisions. However one other idea recently publicised does enter into my own category of "crazy".

A British company has just announced the launch of an upgraded Spectrum clone. Could I be wrong in thinking that the Spectrum already suffers from the same 'local' limitations as the BBC and that you have to have a world market to have any computer succeed, especially an 8-Bit one in what is now increasingly a 16-Bit dimension? I just cannot see the Spectrum becoming the Universal standard accepted by computer users and companies around the world. Is it just our own particular obsessions that blind us to what looks to others common sense?

I don't know but I am prepared to bet that before we see an upgraded 8-Bit Spectrum clone sweeping the world's computer markets, we will see an almost universally used single operating system. If you want to put your money on something, try MSDOS. It may not be the best but IBM has more money than Commodore. Of course, what would be best is a system into which we could plug your C64s, Amigas, BBCs, PCs or even RB2s. Or is that too crazy an idea for the computer world?

Antony H. Jacobson
Managing Editor and Publisher

COMMODORE COMPUTING INTERNATIONAL

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...news...news...news...news

THE FIRST COMPUTER OLYMPIAD

The ballroom at the Park Lane Hotel London recently played host to the world's first Computer Olympiad. The event was billed as being the largest competition for computers and computer programs ever held anywhere in the world. Eighty-six programs from sixteen different countries from as far apart as the cold plains of the Soviet Union to the dusty deserts of the Australian outback. The event was the brainchild of former international chess master David Levy. When questioned as to the point of comparing computers abilities against one another he described it as "Fun". This statement summed up all that happened within this the first Olympiad. The tension, the heartbreak, the competitivness and the feeling of being part of a slice of history was all good 'FUN.....'

Fifteen of the worlds most popular thinking games made up the program of events. Scrabble, Othello, Connect 4, Chinese Chess and of course normal chess made up the main part of the competition, although a few contestants opted to program their computers to play popular card games. Bridge, being a favourite among the Americans.

The names of the various computer programs were put into a hat, each game having there own separate pile. Then two names were pulled out at a time and a knock-out system was incorporated with the winners name being placed back ready to be chosen for another round.

The final day of the Computer Olympiad ended in style. A gold, silver, and bronze medal were awarded to the top three programs in each category. Know particular country dominated the medals but England made a good showing winning gold in Othello, Crab and Bridge.

Acer, the sponser of the whole event, whos headquaters are based in Tokyo are offering a 1.4 million dollar prize to the programmer of a computer Chinese chess program (Go) which can defeat the Chinese Chess World Champion. This particular event at the Park Lane didn't see the money leaving Acers hands, but the speed at which things seem to be progressing could see one of the many programmers with a larger bank account who are attempting to take the money from Acer.

Following the success of this event, dates have already been planned for the 1990, Computer Olympiad. If all goes well Acer will still be the Sponsor and maybe the 1.4 million dollars prize money will still be standing..... What ever happens lets hope next years Olympiad is just as much FUN

Font Packages

New Horizons Software has announced ProFonts Volumes I and II for the Amiga computer. New Horizons tells us the ProFonts packages contain high quality fonts for use with their word processor, ProWrite. The fonts contained in Volume I are suitable for correspondence and reports. Volume II contains fonts of a more decorative nature. Both ProFonts packages can be used with other programs that can utilize Amiga fonts, including Deluxe Paint II, PageSetter, and Notepad.

"The fonts in the ProFonts packages were designed specifically for word processing and desk top publishing using dot matrix printers," said James Bayless, president of New Horizons Software. He also noted, a high resolution printer, such as a 24 pin or laser printer, help produce clean results.

Both ProFonts packages include "System Mover," a utility for moving fonts and other system files from one disk to another. Using System Mover simplifies the installation of fonts on Workbench disks; the user simply chooses the font or fonts to be installed and the program automatically handles changing and updating the appropriate files.

Price: $34.95 each (US). Contact: New Horizons Software, Inc., PO Box 43167, Austin, TX 78745 (USA). Tel: (512) 328-6650.

Momentum Mail

Micro Momentum has released a mailing list management program called Momentum Mail. Its features include: file size limited only by disk capacity; entirely menu driven with keyboard equivalents for ease of use; pre-set fields configured for a mailing list; and a search function that allows multiple criteria and full pattern matching.

Price: $29.95 (US). Contact: Micro Momentum, Inc., 100 Brown Avenue, Johnston, R1 02919.
Tel: (401) 949-5310.

The SANG Transputer Board

The SANG transputer board for the Commodore Amiga 2000 or an AT compatible computer requires an 8 bit PC slot and a Zorro 16 bit slot (Amiga 2000) at the AT height of 114mm. The basic transputer configuration includes one T800 and 1 MB ram which is expandable to four T800 and 16 MB ram.

The outstanding conceptual improvement in transputer design is their ability to perform parallel processing. Fast instructions for process switching on a single transputer can be combined with communication and synchronization of processes on different transputers, Digital Animations, the creators, tell us.

Each transputer provides the capacity for parallel processing in and of itself. On a fully configured board containing 4 transputers, each transputer has 1 link routed directly to each of its 3 counterparts and 1 link routed to an external connector. These links provide high speed communication channels (typical data rate of 20 megabits/second) running independently of the processor and the floating point unit.

In combination with a supporting 'harness' program consisting of a multiplex, a demultiplex and a flood-fill process, the four transputers act as a single transputer with performance 4 times greater than a single transputer operating alone.

Furthermore an "unlimited" number of boards can be cascaded via the transputer links, or connected to other compatible boards having a linkinterface such as the video graphics transputer on the SANG parallel memory board.

For special purposes it is also possible to construct systems with hybrid structures such as pipelines or trees. Message routing algorithms can be developed for use in large networks. Contact: Digital Animation Productions, 79 Mt. Vernon St., Boston, MA 02108 (USA).

Tel: (617) 720-2038.

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Hugely successful 9 pin printer, the Star LC10 provides 4 NLQ fonts (with 96 print combinations) at 36cps and 144cps draft. Has a large 4K buffer and IBM/parallel interface built in. Includes a comprehensive front panel operation and features paper parking, allowung single sheets to be used without removing tractor paper.

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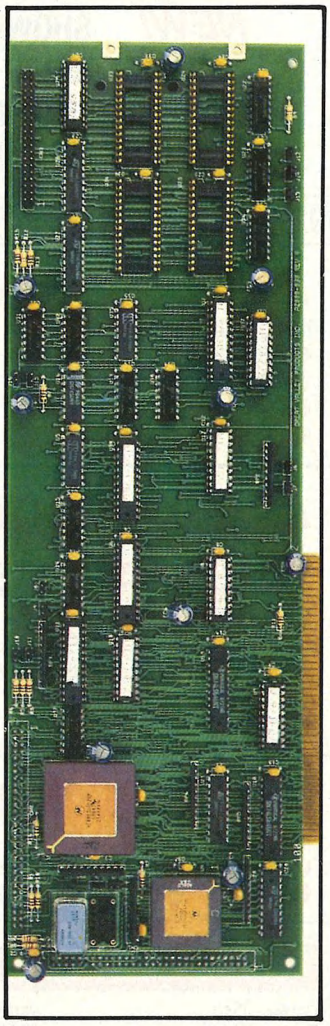
GVP 68030 Accelerator for Amiga 2000



Power Computing Ltd (UK distributors for Great Valley Products) has announced the availability of the new 68030 25mhz accelerator board for the Amiga 2000.

Aimed at the serious user, this board takes the Amiga into power micro class and speeds up considerably heavy weight graphics applications such as Sculpt 4D, Power tell us.

As standard the board comes equipped with 68882 Co Processor and 4MB of 32bit 0 wait state nibble ram. The board can be upgraded using SIMMS to a maximum of 8MB. The 68030 board also features a high speed AT type hard disk interface.

Prices are as follows: £2,500 (+VAT) for a system with 80MB Quantum AT hard disk; and £1,738 (+VAT) without a hard disk.

New Plastic With Unique Properties

AT&T scientists have created a fundamentally new class of plastics with unusual properties that may have novel uses in electronics and optics.

The key ingredient in the novel plastics is silicon, a departure from familiar plastics, which are based on carbon. In the new materials, called polysilynes, the silicon atoms are linked together in irregular networks of fused rings. These networks give the plastics their special properties.

"Their unique combination of optical properties and chemical sensitivity to light make polysilynes more than laboratory curiosities," said Timothy Weidman, the AT&T Bell Laboratories chemist responsible for the synthesis of the materials.

Already the plastics are being used to explore a new technology for making optical waveguide connections, tiny channels that carry light pulses in much the same way that metal connections conduct electricity.

"Optical connections may have numerous advantages for high-density and high-speed transmission," said Larry Hornak, an AT&T Bell Laboratories scientist exploring otical interconnection strategies for integrated digital systems. "Polysilynes accelerate our research by allowing optical waveguide structures to be prepared in minutes instead of days."

Their special qualities also may make polysilynes potentially attractive for such applications as optical computing and integrated optical signal processing.

To prepare polysilynes, chemists at AT&T Bell Laboratories used powerful ultrasonic waves to coerce silicon atoms into forming disorganized networks. A special characteristic of these networks is that each silicon atom bonds to three other silicon atoms and one organic group to make the networks soluble and useful as coatings.

It was discovered that ultraviolet light causes oxygen from the air to join the network, causing dramatic changes in the materials' optical behaviour. By carefully exposing polysilyne films through an optical mask, the reaction involving the polysilynes, oxygen and ultraviolet light can be used to generate thousands of optical interconnections in a single step.

PC-ALBUM

Freehand, the Surrey based Computer Graphics Systems company, has announced the release of PC Album, a full colour integrated image database package. PC Album is a full colour image database to incorporate database management with image processing technology, Freehand tell us.

The PC Album allows all users to capture full colour images (with 32,768 colours on screen simultaneously) through a video camera or colour scanner and incorporate these images along with traditional textual database information. Freehand describe this software as applying to a wide variety of applications:- Security Identification, Personnel Records, Estate Agents, Museums, Travel Agents, Inventory Control, Law Enforcement, Art Galleries, Photo Libraries, Design & Advertising Agencies, Model & Recruitment Agencies, and Medical Applications etc.

PC Album has been designed to utilize the latest image compression and data storage technologies. Images can be stored on an optical WORM drive and using the new Starlite image compression board available from Freehand, images can be compressed at a ratio of up to 40:1 without any noticeable degradation in image quality, the company claim.

An uncompressed full screen, full colour image which normally occupies over 300 Kbytes can be compressed down to just 7 Kbytes with this special board. This means that transmission of colour images over the normal telephone line is now very viable, and up to 50,000 images can be stored on one optical disk.

PC Album provides up to 500 text fields per record, and unlimited records per database. Images and text can be retrieved using selection criteria based on any of the text fields, and if a hard-copy is required a full colour print can be produced from one of a number of colour printers which are supported by the software. (See picture).

PC Album allows a user to manipulate an image database. The database is completely menu driven. Users can enter, view, query and report on PC Album without having to write one line of code. Yet for the ambitious application, PC Album comes with its own Program Applications Language.

Freehand can supply all the components to make a complete system including the host computer, Vision-16 image capture and display board, analogue monitor, Starlite hardware compression board, Video capture camera, 400 Megabyte Optical WORM drive, full colour printer and of course the PCX Album software. Price: £15,000 (ex VAT) for the total system. £1,225 (ex VAT) for the PC Album.

Contact: Freehand Ltd, York House, Tylers Court, Cranleigh, Surrey GU6 8SS. Tel: (0483) 268000.

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Simplified user interface PCs and workstations

What is claimed to be a significantly friendlier user interface for PCs and workstations has been developed at Siemens Research Laboratories in Princeton, New Jersey. This software package is what is called a "tiled interface" — a program implemented under X-Windows to facilitate easier working.

In contrast with previous techniques, windows relating to various sub-tasks do not overlap on the screen, but are arranged adjacent to each other in various sizes. As the information relating to all sub-tasks remains visible, work on complex applications is made easier, especially when several sub-programs have to be processed simultaneously (see CCI October for a full report on Windows).

The technique developed by Siemens arranges the position and size of the windows automatically. It is analogous to the application of tiles of various size, shape and colour on a wall and, therefore, it is known as the "tiled window technique". The software program — the tile window manager — controls the size, placement and lettering of the windows on the screen.

The tiled window manager is implemented under X-Windows, which is supported by a series of leading computer manufacturers. It is available from MIT as the X-Windows Version 11, Release 3.

Reflex 'Autumn Bundle'

Reflex, a Maidenhead based data and graphics presentation company, have launched an 'Autumn Bundle' promotion to bring together three of their popular graphic based products.

The package consists of: Presentation Taskforce from Lotus, a complete image library holding 1700 icons which support all Lotus Freelance screen and output devices; PC Driver (IBM) which gives the presenter the ability to drive a PC by infra red remote control, controlling popular PC programs without being tied to the key board; Summagrahic's Summasketch plus, recognised as the World Number One graphics tablet, which fully exploits the users creative skills providing maximum creation power. The £960 package has been reduced to £625 (+ VAT). Contact: Reflex Ltd, Viewpoint, Gardener Road, Maidenhead, Berkshire SL6 7RJ. Tel: (0628) 771414.

TV Text Professional

TV*TEXT Professional produces lettering and graphics for video titling and desktop presentations. TV*TEXT Professional renders text, shapes, and objects in any number of colourful styles. Its full IFF image compatibility means TV*TEXT Professional can be used with a wide variety of graphics and animation programs, including our TV*SHOW special effects slide show program.

Price: $149.95 (US) includes Zuma Fonts Volumes 1,2&3. Contact: Zuma Group, 6733 N. Black Canyon Hwy, Phoenix, AZ 85015, (USA). Tel: (602) 246-4238.

VidTech

The VidTech Scanlock Model VSL-1 provides broadcast-quality video outputs of processed reference and Amiga computer video signals. The system gen-locks the Amiga computer to a reference (NTSC or PAL) or S-VHS video and keys (superimposes) the Amiga video over the reference video. The Scanlock is a state-of-the-art system, featuring the latest analog and digital design techniques, that provides Amiga users with video quality normally found in broadcast equipment, claim Vidtech, its creators.

The Scanlock's reference video can come from a stable source, such as a video camera, or from the playback of a VCR tape. Both composite (NTSC or PAL) or component (luma/chroma or Y/C formats, including S-VHS, M2 or BETACAM, are processed by Scanlock. The Scanlock VSL-1 transforms the Amiga RGB video into NTSC, PAL or Y/C format without degrading the reference video.

The Scanlock is available in two models, the model VSL-1-N and Model VSL-1-P. The N model is compatible with the NTSC broadcast format; the P model with the PAL broadcast format.

Price: £TBA. Contact: VidTech International, 2822 NW 79th Ave., Miami, FL 33122 (USA). Tel: (305) 477-2228.

Optical disks

Optical storage media will form a $4.8 billion market in the US by 1993, according to a recent report from Frost & Sullivan. Several years ago an optical disk boom was forecast to occur by 1990, but this has now been delayed to 1993 or beyond.

Optical disks have vast amounts of memory — some have storage capacities up to 1,000 times those of conventional floppy disks. And the price per unit is set to decrease over the next few years.

*Frost & Sullivan predict that by 1993 the volume of sales of optical disks will be more than four times higher than the total for 1989. It is also expected that optical disk technology will have reached a penetration level of 18 percent of the installed base of PCs. And although WORM (Write Once, Read Many) systems are currently dominant in the optical market, erasable systems will be the most popular type of 1993 (see table below). Look for **CCI**'s feature on WORM in an upcoming issue soon!*

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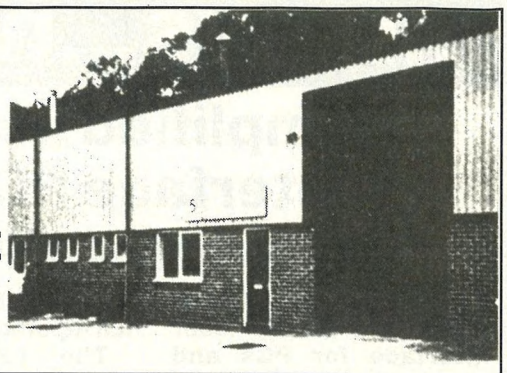

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LOST-COST BUSINESS PRINTERS

Star Micronics U.K. Ltd, the fastest growing supplier of computer printers, has added three new models to its Business Series, making theirs a comprehensive range of low-cost, multi-font, dot matrix printers. The range now comprises six models spanning a price range of £199 to £499.

Among the new additions are two wide carriage models, both with the ability to handle A3 sheets in landscape format, and one aso sporting a bottom feed facility, Star Micronics report.

Introduced at the top of the Business Series is the LC24-15, a wide carriage version of the LC24-10. The second new machine is the LC-15, which has been introduced to answer the demand for a wide-carriage version (also 16½ inches) of Star's LC-10. However, it is the introduction of a bottom feed facility on the LC-15 that may prove to be of greater interest to users. Working in conjunction with the optional pull tractor, the feature is especially useful for applications requiring label printing or multi-part stationery.

Star's third new addition is the LC-10 II. All three new machines feature paper parking — now standard on all Star dot matrix printers — and friction and push feed tractors, with an automatic cut sheet feeder available as an option. On the LC-15 and LC24-15, ther is also an optional pull feed tractor.

Prices: LC24-15, £499, LC-15, £399, LC-10 II, £229.

Tele Tutor

Tele Tutor is an interactive telecommunications tutorial recently released by Micro Momentum. Tele Tutor is an aid for the novice or those who have telecommunications experience but haven't fully comprehended all that is to know. Tele Tutor has the following features: provides a firm knowledge base in the ever expanding telecommunications field; includes informative text is on topics ranging from auto-answer to Zmodem; has a comprhensive BBS listing for the United States; and, includes actual terminal software to get you started.

Price of $29.95 (US). Contact: Micro Momentum, Inc., 100 Brown Avenue, Johnston, R1 02919 (USA).

Tel: (401) 949-5?10.

Maxi Disk v2.0

Are you tired of running out of space on your floppy disks? Herne Date systems say you can even fit 420k of data and programs on a 360k disk, 800k on a 720k disk, 1.4 meg on a 1.2 meg disk or 1.6 meg on a 1.44 meg disk. Using DOS version 3.2x or later, MAXI Disk formats your floppy disks with extra tracks and sectors not normally used by DOS to create special custom DOS compatible disk formats which take full advantage of the space missed by DOS. MAXI can be used on almost all systems running PC- or MS-DOS 3.20 or later (including DOS 4.0) to provide full access to the expanded capa[illegible] disks reliably and transpare[illegible]tly.

MAXI will format floppy disks only. Unlike the DOS FORMAT program, MAXI cannot be used to format a hard disk, thus helping to prevent accidental losses of valuable data by inexperienced users.

Price: $19.95 (US). Contact: Herne Data Systems Ltd, PO Box 714, Station C, Toronto, Ontario M6J 3S1. Tel: (416) 535 9335.

Home Office Kit

The Disc Company has announced the release of The Home Office Kit solution package for the Amiga 500. The Home Office Kit is a complete solution pack designed for the new or existing Amiga owners interested in working at home, the company tells us.

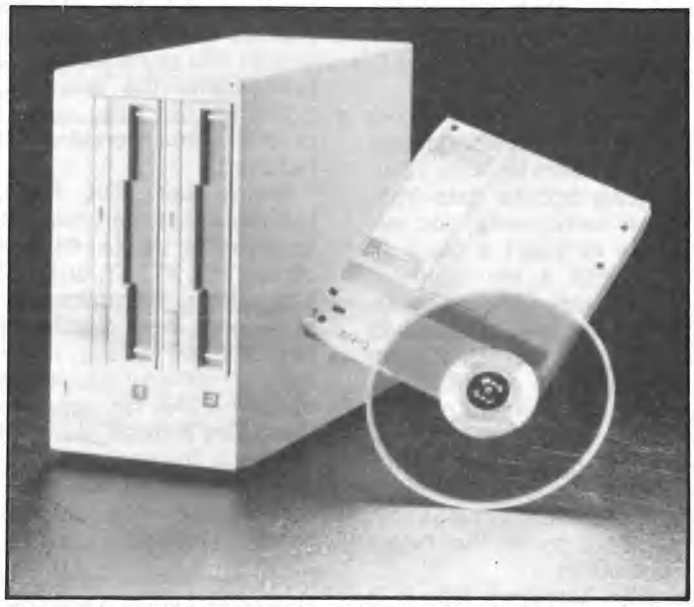
The Kit is composed of KindWords 2.0 word-processor, Pagesetter 1.2 desktop layout program, Maxiplan spreadsheet, InfoFile database, as well as over 35 different styles of headline fonts and an extensive library of clip-art.

Price: £149.95 (including VAT). Contact: The Disc Company, 1 Rue du Dôme, F-75116 Paris, France. Tel: (33 1) 45 53 10 53.

High-Performance Optical Drives

Southampton-based HTEC Legend Limited has been appointed sole UK distributor for Pioneer high-performance optical disk drives and subsystems.

Well-received in the US, for this high-speed, high-density optical storage includes archiving; CAD/CAM, software and graphics libraries; image, digital audio and video files; LAN file servers; data distribution; workstation backup, and many others, the distributors claim. HTEC also supplies the DD-S5001 with Corel interface software.



Pioneer's drives are the fruits of many years' experience in laser and disk drive technologies. They represent a world first for Pioneer, using organic dye instead of the traditional metallic-base recording material to offer complete freedom from oxidation and data life in excess of 15 years.

The first Pioneer product available from HTEC is the compact DD-S5001 WORM (write once, read multiple) drive providing 650Mbytes per removeable cartridge of cost-effective (pence per Mbyte) long-term storage for computer systems. A wide range of applications

The drive operates under DOS 3.3 and higher versions. PC/LAN, Novell NetWare, 10Net and 3Com3+ network operating systems are supported. The DD-S5001 is equipped with a SCSI interface as standard, optionally with an IBM-specialised SCSI enabling the controller to be essentially built into the computer.

Contact: HTEC Ltd, 303-305 Portswood Road, Southampton SO2 1LD. Tel: (0703) 581555.

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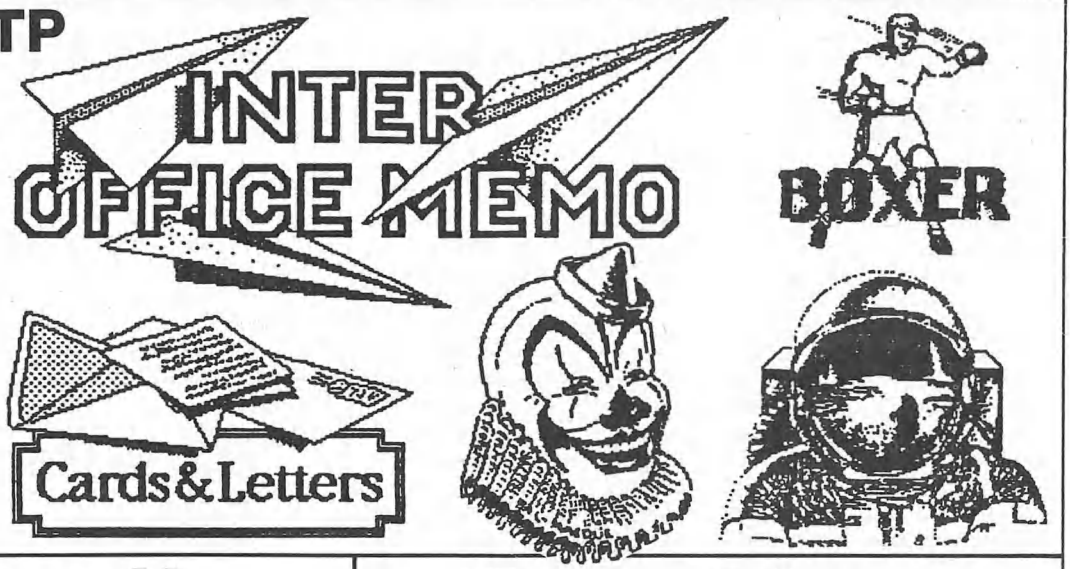
Photofile DTP

Photofile has recently expanded its service to sell public domain and its own Clip Art for incorporating into DTP and Art packages. On offer is a set of seven disks of Mono Clip Art for use on the Amiga. The complete seven disk set is available solely from Photofile for £35. None of this Clip Art has been seen on the Amiga before, the company claim. Contact: Photofile, PO Box 196, Nottingham NG2 4GQ.
Tel: (0602) 261498.



Numbers Up

Mindscape International recently released an upgraded version of its pop-up Lotus-compatible spreadsheet Numbers Up in order to coincide with the release of 1-2-3 Version 3.0, the company tell us.

By loading Lotus 1-2-3 (or VP Planner) worksheets into Numbers Up, users can instantly access data from those worksheets, for example to insert a block of cells into a management report or revised price information into a product database. Calculations can also be done on the fly, for example to insert a price quotation into a letter or sales targets into a memo. In all instances, Numbers Up automatically reformats the data to fit the target application.

With Numbers Up, it is now possible to effectively work with two Lotus spreadsheets simultaneously, cutting and pasting data between the Numbers Up and Lotus worksheets with less than half-a dozen keystrokes, Mindscape tell us.

Numbers Up also allows variable cell and column widths, enabling users to design and generate forms from within the program, drawing on information from a Lotus worksheet if required.

Using just 12K RAM, Numbers Up can handle worksheets up to 64x999 on any PC, XT, AT, or PS/2 compatible, standalone or networked, with 256K RAM and DOS 2.0 or later. Numbers Up will take advantage of LIM EMS for memory swapping instead of disk if installed. The program supports the TesSeRact Standard for Ram-Resident Program Communication.

Contact: Mindscape, PO Box 1019, Lewes, East Sussex, BN8 4DW.

Numbers Up will be released in mid August, with a recommended retail price of £49.99 inc VAT.

Fantavision

Following the signing of an agreement between Domark and Broderbund, Domark is now the UK supplier for Fantavision, an animation program.

With Fantavision you create any two objects or creatures in separate frames. The program then generates up to 64 'in between' frames to make your first drawing turn smoothly into your second. For instance, you can then drawn an aeroplane in the sky, then in another frame draw it on the ground, watch as the plane glides in smoothly for a three-point landing. This animation technique is known as "tweening" and replaces the frame-by-frame process that professional animators normally use.

Price: £39.99. Available from Amiga and IBM PCs and compatibles.

A sublime printer?

Hitachi New Media has launched a colour printer based on sublimation dye transfer.

The advantage of the sublimation technique, the company claim, is that instead of applying separate dots of yellow, cyan and magenta, the inks for each pixel are mixed on the paper's surface. Because the pixels actually run together, the paper does not show through. The result is highly photographic.

The printer offers resolutions up to 1728 by 1280 and 16 million colours. It can also be used with graphics cards that conform to the 1024 by 768 and 1280 by 1024 resolution standards.

The basic VY-5000 printer, is claimed to print a page in three minutes.

Price: £8,000 (drivers typically cost a further £1000).

Format Executive

Financial Systems Software has announced the UK release of Format Executive for the Commodore 128 with a 1571 disk drive and 128D.

Format Executive allows 128/64 files to be transferred to and from the Commodore Amiga, Atari St and Apple Macintosh.

Also, files can be transferred to or from, 150 different 3.5" and 5.25" disk formats with ASCII and PETASCII translations.

Price £59.95. Contact: FSSC, 18 High Street, Pershore, Worchestershire, WR10 1BG.

Tel: (0386) 553153.

AMIGA'89

AMIGA '89, the European Amiga exposition and conference, will be held Nov 10-12 at the Koln Messe Center, in Koln, West Germany. To-date, 90% of the exhibit space has been sold and a record 35,000 attendees are expected, claim Markt & Technik, the trade show sponsors.

In addition to the strong turn-out, a complete conference and educational seminar program will introduce many areas of Amiga technology, with additional classes on advanced subjects. Commodore Buromaschinen GmbH are also official show sponsors.

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DIY weatherpersons

British Aerospace has developed a satellite receiving kit and desktop computer which analyses satellite pictures. Called Dartcom, the kit will give PC owners direct access to information beamed down from satellites orbiting above our heads. Dartcom allows users to enhance pictures, colour them and even make 3-D representations.

The system uses a one-metre receiving dish attached to an IBM-compatible computer. All that is needed to receive the satellite images is an adaptor card and a special graphics software package, costing £4,977 in total. Until now, the cost for a comparable system has been around £20,000.

Deluxepaint II enhanced for PC owners

Electronic Arts has announced the release of DeluxePaint II Enhanced for the IBM and PC compatibles. DeluxePaint II Enhanced is a major upgrade from the original, DeluxePaint II. It features a vast array of new painting tools and expanded graphic power, giving users flexibility in both creating and displaying their images.

The primary new features include poster-size printing — up to nine times the original page size; sculpted colour fonts for impressive type; gallery — offering a slideshow for presenting work, letting the user specify viewing options and transitions between slides; picture preview before opening documents; brightness and contrast control of image processing; and several new brush modes. In addition to supporting VGA/MCGA graphics, DeluxePaint II Enhanced supports PCX files, Expanded Memory (EMS), over 250 printers and creates stunning effects in EVGA mode.

Price: £99.99. Minimum requirement: 1MB 640K/ graphics card/hard drive 5.25 and 3.5 version available.

Electronic Arts will be offering DeluxePaint II Enhanced as an upgrade to DeluxePaint II owners for £30. Contact: Electronic Arts' Customer Services, 11-49 Station Road, Langley, Berks. SL3 8YN.

Tel: (0753) 46465.

3.0 and Handy Scanner Bundle

Mirrorsoft's Desk Top Publishing package 'Fleet Street Editor Version 3' and the Handy Scanner, bought individually would cost around £412.84 (including VAT). Mirrorsoft and Lightning have announced a bundle for the two at a retail price of just £343.85 (including VAT). Contact: Lightning Business to Business, Bashley Road, London NW10 6SD. Tel: (01) 965 5555. Order Desk (01) 961 8585.

MIPs Away!

Sir Clive Sinclair has announced that he is close to releasing a 250mips (million instructions per second) RISC processor. According to Sir Clive, it will be targeted at the specialist graphics market, bringing the cost of a high-performance graphics workstation down to around £2,000. It should arrive within the next 8-10 months.

European Satellite Communications '89 Conference

A two-day conference providing a timely review of the issues raised by the European Commission's Green Paper on the future of satellite communications within Europe will take place from 30 Nov. to 1 Dec. at the Queen Elizabeth II Conference Centre in London.

The sessions will address such topics as land mobile satellites, the provision of satellites in Europe, business television and regulation, developments in satellite hand held terminals, and the deregulation and liberalisation of satellite services in Europe.

The conference is aimed at all communications users; satellite operators and service providers; equipment manufacturers and suppliers; policy makers and regulators; telecommunications administrations; and satellite manufacturers.

Contact: Vivienne Huang, Blenheim Online.
Tel: (01) 868 4466.

Daisywheel Prices Drop

Qume has reduced the prices of its two leading daisywheel printers — the Sprint 11/55 and the 11/90. The Sprint 11/55 is now £850 (from £1,366) and the 11/90 which is the fastest daisywheel printer on the market at 90 c.p.s. costs £1,593 (from £1,674), Qume claim. Contact Qume Ltd., Qume House, Park Way, Newbury, Berkshire RC13 1EE.

Tel: (0635) 523200.

Prodata

Arnor, the makers of Protext, have announced the release of Prodata, a database management program for the IBM PC and Commodore Amiga.

Prodata is innovative in several respects.

Features include Protext-like editing, selection of records by filtering, powerful printing options (just like Protext), import and export, password protection, file management screen, background printing, macros, compatibility with foreign languages, multiple indexes.

Prodata is being introduced at a special price of £55 until the end of November 1989, when the price will rise to £79.95.

Contact: Arnor Ltd, 611 Lincoln Road, Peterborough, PE1 3HA.
Tel: (0733) 68909.

'Yo, Ariadne — Anyone home?'

Ariadne Software Ltd has moved to join Ariadne Interactive Ltd at: 322 Premier House, 10 Greycoat Place, London SW1P 1SB. Tel: (01) 222 8866.

Ariadne Interactive Ltd is a new company set up by Ariadne Software Ltd and another company, Taylor Services Ltd, to specifically market the Interactive Video and Computerised Training products developed by Ariadne Software. All communications to either company should be sent to the new address.

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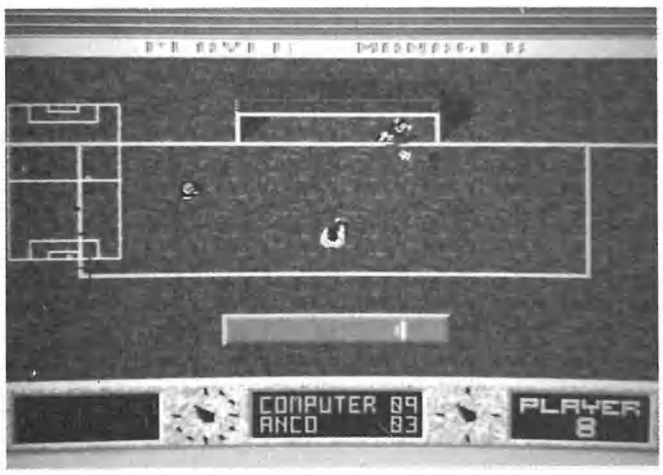
ANCO ON THE BALL



Anco who have been around long enough to see off most of the other independent software houses came up with a gem of a game when they launched Kick Off for the Amiga. They have just released the 64 version and it is already climbing the Charts at speed. Kick Off was created to the personal specifications of Anil Gupta, Anco's longtime Boss. No, he is not five foot eleven inches, but did you notice that unlike most computer sports games, the players in Kick Off were exactly in proportion to the size of the football pitch they were playing on - and they were in fact all just that height, five eleven!

Now we hear that Anco are going to please the Amiga Kick Off fans with a follow up release of a data disk called Extra Time. It will be the same style as the original Kick Off, of course, but it will present players, your computer ones, with a bigger challenge. Tougher games and conditions and some other still secret goodies await you. Extra Time is due for release in Mid-November at £9.95.

Player Manager

But that is not all. Dartford football fan (and onetime goalkeeper for Bombay United, we hear) Anil is brining the way of followers of the world's favourite game. About to emerge from the furiously coding fingers of Dino, Anco's top programmer who wrote Kick Off too, is Player Manager. (No, not Football Manager! That came out years ago!) This, Anco tells us, will also be in the shops before Christmas and will set amazing new standards in both the strategy and gameplay of footall on the computer.

In Player Manager, you don't just pick the teams etc. as in the boring old original Football Manager but have real football action too.

You are in the Third Division to begin and you have to make all sorts of decisions including whether to play yourself. And there will be around 1000 league players involved. As time passes and you move up the divisions, or try to, your playing powers decline and that play or not move takes on ever greater importance.

There is, Anco says, a large dollop of what passes for computer game artificial intelligence being programmed into Player Manager which should make it, allied to its Kick Off style action a big hit with footie fans all over. If Dino's recent work is anything to go by, we should be in for an interesting winter sport that won't mean getting frostbitten toes on the terraces or chased by the fuzz in mistake for the local hooligans. The last time we went to a match at Arsenal that's exactly what happened. So we'd certainly rather stay at home and become an Anco-style Player Manager! Watch this space for further football news from East London. (Anco to sponsor the World Cup? Brazil to play home games in Dartford? Tottenham to change their name to Bombay Hotspurs?)

Intel Release

Intel have announced that the 25MHz i486, was released in quantity in October. Sampling of the 40MHz i486 will take place later this year, and they also announced the 50MHz version sampling by the end of 1990. While the 33Mhz version benchmarks at 20 Vax Mips (VUPS), the 50MHz version is expected to perform at 30 VUPS, according to the company.

Intel predict the i686, containing 22 million transistors, will be ready by late 1995 or early 1996, and by the year 2000, the 100 million transistor i786 will appear, running at 250 MHz while occupying only 1 square inch.

RED LIGHTNING FOR THE AMIGA

Strategic Simulations, Inc. has announced the release of Red Lightning, a new "World War III" wargame, for Amiga computers. The IBM PC version of the game is already available.

Red Lightning is an operational level land and air wargame that depicts a hypothetical conflict in Central Europe between NATO and the Warsaw Pact nations. Modern air and land weapon systems are included, such as the Soviet T-80 tank and the U.S. F-117 Stealth Bomber. Every vehicle and aircraft is accounted for in this brigade/divisional level game. Up to two players command either Soviet or NATO forces. Three scenarios, five difficulty levels, and multiple options will challenge intermediate to advanced wargamers.

As the Soviet player, the mission is to sweep aside NATO forces and capture Ruhr. As the NATO commander, the challenge is to repel the invasion - while attempting to maintain the alliance in the face of mounting casualties. Any Soviet aggression will surely extend to Norway, Iceland and the North Atlantic. The battles in these regions greatly affect the outcome of the war in West Germany and are fully accounted for in this game.

U.S. Price $59.95.

Too Smart?

While it is said that expert systems can be very effective in such areas as medical diagnosis because people are willing to be more open with a computer than a human doctor, in others trusting computers completely may be dangerous.

Margaret Boden, professor of philosophy and psychology at Sussex University claims one of these could spark off the destruction of the world.

Expert systems sometimes get it wrong and if used by the military might plunge us all into nuclear war because the computer thought it detected a missile attack.

You don't need to be a university professor to realise that if something can go wrong with a computer it will, you only have to have owned a C64... Would you trust anything - or anyone - with the power to destroy the planet? And at the top of your list would you put the military or their computers?

MS II Scanner

The MS II is an automatic 50 page sheet feeding scanner with 300 dpi. With its fixed CCD lens it can scan an A4 page in 9.9 seconds; and it also provides extremely high accuracy, its creators claim. Omnipage, OCR software, is being bundled free of charge. The MS II like all the Microtek range of scanners is compatible with the IBM PC and PS/2.

Price: £2048. Contact: Katakana Ltd, Manhattan House, Bridge Road, Maidenhead, Berkshire, England SL6 8DB.
Tel: (0628) 75641.

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Feature

DISK WHIZ

Peter McDonald does a bit of tidying up with this handy disk housekeeping program.

DISK WHIZ is a Public Domain software program, on one 5.25 inch disk, for the C128 with 1541, 1571, 1570 or 1581 disk drive. As is usual with PD items, there is nothing in the nature of a manual; information has to be gleaned by bringing it to the screen and reading it there.

Getting Started

The only printed matter with this disk is a small sheet describing in just over a dozen lines what DISK WHIZ V1.1 will do. DISK WHIZ is a utility that allows you to copy and move files easily, plus more.

Using DISK WHIZ the first time may present you with some problems. I tried booting it i the usual way; that got me nowhere, so I pressed F3 for the DIRECTORY and found that there is only one item (DISK WHIZ V1.1) listed. The command RUN got the program up and going. As there only one program in the directory, you can also RUN it by pressing shifted RUN STOP.

This brings a menu to the screen, where you are asked to state the device number (8 is the default) and if you press RETURN you find that the program reads the disk in the drive (DISK WHIZ itself, in my case, because I did not

"A black curtain moved sideways across the screen, and the program loaded and ran."

realise that I was supposed to put it into the disk I intended to process!). However, one thing the printed matter *did* tell me was that by pressing the HELP key, I could obtain detailed instructions. So I pressed it. The details were sensibly and economically conveyed.

Into Action

I returned to square one and this time inserted another disk (a collection of PD items for the 128) before pressing RETURN to confirm that I was using device 8. A message told me that the files were being read. Then the name of the disk, its ID, and the number of blocks free appeared on the screen, together with a list of all the files on the disk. By using the cursor I could move the highlighting up and down the list of files, selecting whichever one I wished to process.

I chose an item called "library 128". What could I do with it? Well, RUN it, for a start, by pressing F1. I was asked if I was sure, and I typed "y". A black curtain moved sideways across the screen, and the program loaded and ran.

Well, this occurrence was not a big deal in itself, but useful, perhaps, if you wanted to test that all weas well after using one of the other facilities. So let us look at them. Pressing F3 enables you to display the contents of a SEQential text file. That, at least, is what the instructions say. VizaWrite Classic documents are in SEQ, but I could not get a great deal of sense from them. Perhaps they need to be changed into ASCII first. A SEQ program on the PD disk worked OK. The text appeared on screen just as promised.

Pressing F5 (the print command) produced a print-out (printer in Commodore mode) of the text just brought to the screen. This only works with a SEQ text file.

Got an Itch? Then SCRATCH!

Pressing F4 gives you access to a routine which enables you to change the name of a file. This works like lightning, restoring you to the screened list of files so that you can see that the change has taken place. There is also a SCRATCH facility. Yes; I know you have one in Basic 7.0, but you cannot reach it from within DISK WHIZ, and in any case it will only deal with one fie at a time. In DISK WHIZ, if you want to apply a process (like scratch or copy) to a number of files, you highlight one, then type a plus sign, then highlight the next, type a plus sign, and so on, finishing with a plus sign after the last file chosen.

When you press the appropriate F-key, if you are asked if you want to process them all. If you type "y", each will be listed in turn and you will be asked if you want that particular file to be processed. So you do have a chance to change your mind. This is not the first program to do this, but it does it well.

Drives

For those who use a 1581 drive, and know all about subdirectories, F8 will enable them to switch to a new subdirectory.

If you use two drives, you can switch to device number 9 by pressing F2 and changing the drive. You wil then be presented with a list of files on the disk currently in that drive, and you can process them, too. Now the COPY facility is quite something because you can use it to copy files from one drive to the other (or, of course, to a different disk in the one drive). *And this operates just as well if your second drive is a 1581.*

The copy facility will not cope with REL type files. But otherwise it copies from 1571 to 1581, or vice versa. It will only copy files, and not a whole disk, but this PD program is very user friendly compared with some of the pricey 1571-1581 copiers.

Having copied from one disk to the other, of course, you can use the RUN facility (F1) to make sure that your copy works perfectly (see above).

The questions that the bright-eyed gentleman on the back row is dying to ask are: "Can you copy DISK WHIZ itself? If so, can you copy it from a 1571 to a 1581?" The answer is "yes" to each question. What is more you can load the program *from* the 1581 (used as device 9) by typing: RUN "DISK WHIZ V1.1" ON U9. This will make life much easier for everyone with a 1581, though you will have to remember that copying a program from device 8 to device 9 does not alter all the references to device 8 within the program itself. You may have to use some search facility to detect them and alter them to references to device 9.

Conclusion

The lay-out of this program is pleasant and it works like a charm. If you are beginning to suspect that I have fallen for it, you are quite right!

At the end of the HELP section, the author of DISK WHIZ thanks us for our support, wishes a long life for the 128, and bids us enjoy this program and "look forward to my next creation". Whether through modesty or forgetfulness, the author's name is nowhere stated. It's a shame really – whoever wrote this program deserves the credit.

P.M.

Price: £4.95. Contact FSSL, 18 High Street, Pershore, Worcestershire. Tel: (0386) 553153.

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VDUs

Is your monitor a health hazard? Nancy Picard reports.

Val Pugh faced a dilemma. As an employee of TSB Bank for several six years, she gradually worked her way up in the system so that she became a technical assistant, a position which involved many hours of on-screen computer use. When she became pregnant, she also became concerned that the emmissions from the screen could possibly harm her child. So, she refused to work on the computer, typing reports for people and other duties associated with her job. Instead, she requested - and received - work that allowed her to stay away from computer monitors.

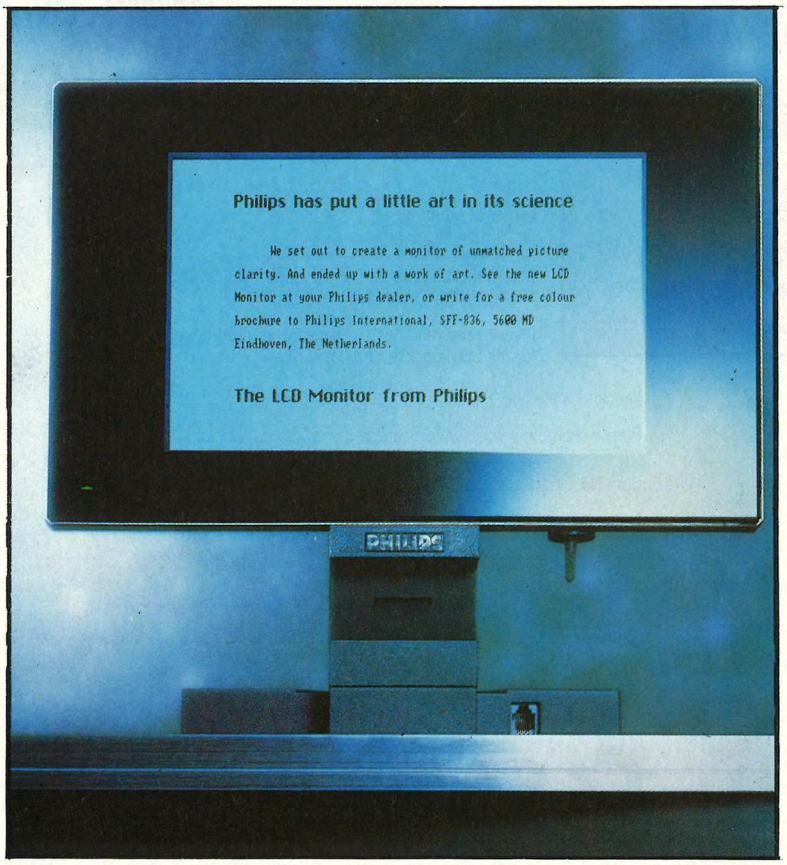
'Some of my co-workers, especially the men, acted a bit funny. There were a few odd remarks, but as I was not happy using the terminal and refused to do the work, there was really nothing they could say,' she recalled. Val was lucky - she was treated fairly. A case is currently pending involving 51-year-old Urmilla Joshi, a data preperation operator, who quit her job with British Airways claiming premature retirement due to ill health. According to The Financial Times, the legal action could prove a test case of the application of health and safety legislations to the use of visual diplay units (VDUs).

They have yet to force such legislation in Sweden, where there are already strict guidelines for PC vendors of video displays for which no x-rays are allowed and the electrostatic potential must be very close to zero. In addition, the requirements for low frequency electromagnetic fields and sound emmitions are also given. Big deal, right?

Wrong. At the back of your monitor, the cathode ray tube fires electrons at a phosphor screen - the result is what appears on your monitor. However, the 'bullets,' which are actually electrons travelling approximately 186,000 miles per second, do not stop at the screen. Instead, they bombard your face and upper chest. There's also evidence that the tube may produce more radiation from the top or front, affecting people not using the terminal.

The tube also produces ultraviolet, x- and radio-frequency waves. Whether or not the amount of radiation produced is harmful has yet to be decisively proven. According to a report published on VDTs by the International Research Association for Newspaper Technology (IFRA), in modern terminals with solid-state constructed circuitry, no x-ray radiation is emmitted. However, how many of you are knowlegdable about your monitor or terminal circuitry? Thinking of moving to Sweden yet? It gets better.

Even if direct exposure to some form of radiation is minimized, the dust and dirt that collects on your screen is a result of the electromagnetic static of the electrons, and has been the proven cause of sinus problems, eye infections, and even acne. Flickering, distortion and other defects, including hard to read charcter fonts, are all causes of fatigue and irritation prone to affecting VDU operators. Does anyone have the name of a good travel agency?


Philips has put a little art in its science
We set out to create a monitor of unmatched picture clarity. And ended up with a work of art. See the new LCD Monitor at your Philips dealer, or write for a free colour brochure to Philips International, SFF-836, 5600 MD Eindhoven, The Netherlands.
The LCD Monitor from Philips
PHILIPS

"LCD MONITORS Another solution to this radiation monitor problem is to trade in your cathode tube for an LCD display. Philips produce an LCD monitor for PCs and compatibles, which is available as MDA/HGC or CGA (699). The company plans to introduce an RGB converter soon so that the LCD can be linked directly into conventional EGA ports. A full colour LCD model with built in VGA capability will be released in 1990."

COMMERCIAL PRODUCTS AVAILABLE

But before you move to Sweden, or quit your job, there are alternatives. Taxan launched what it claims to be the first UK low radiation monitors, the Supervision 780LR (629) and the Multivision 770 Plus LR (699), designed specifically to achieve low electrostatic and electromagnetic fields. According to the company, it uses a special condiuctive treatment applied to the CRT surface of its monitors to keep emmission values within the maximum recommended by the Swedish National Council of Metrology and Testing, in co-operation with the National Board of Occupational Safety and Health, and the National Institute of Radiation Protection.

Following healthy sales in Sweden (nothing like a good consumer scare to promote profits), Eizo has lauched the Z-series of 14in paper white and colour monitors. They claim that their specially designed circuitry counters magnetic screen emmitted radiation. The range starts with a mono MDA screen (230), and has several types of monitors, with the highest priced being the multiscanning VGA (710).

Several other companies are also offering monitors: Hitachi has an Auto 480 LMF model (525); Salora produce a range of mono and colour versions from the 41BJ 14 to the 445G21 (prices POA); and Expert Graphics have launched the GS10, the most expensive of them all (2,450).

LCD MONITORS

Another solution to this radiation monitor problem is to trade in your cathode tube for an LCD display. Philips produce an LCD monitor for PCs and compatibles, which is available as MDA/HGC or CGA (699). The company plans to introduce an RGB converter soon so that the LCD can be linked directly into conventional EGA ports. A full colour LCD model with built in VGA capability will be released in 1990.

An LCD consists of a film of liquid crystal, an organic material, between two polarising filters. There is a reflector at the bottom of the monitor and a protective sheet at the top. When the electric field is switched on, it twists molecules so that they either reflect or transmit light that falls on them, thus creating an image. Recently, new forms of liquid crystal have taken the name, 'spertwist enmatic.' and backlighting has been added to increase the contrast ratio.

LCDs are popular not only because the power requirements are low, but also because a similar aspect ration as with traditional monitors can now be achieved. Working with your LCD monitor is no longer like trying to do wordprocessing on a wristwatch whilst in a dark closet.

These monitors are not to be confused with filtering devices, which only serve to reduce glare and/or to enhance the contrast of the screen. Filters are like apirins - they may be less expensive, but they mask the true problem.

CONCLUSION

The prices of the monitors are not cheap, but they are at least a welcome alternative to the cathode tube. The office enviroment is strewn with hazards, from the chair on which you sit, to the angle of the monitor, to the office lighting, and even to the wretched coffee in the canteen. The introduction of healthy monitors into the UK is a step in the right direction, rather than a step out of the door of your company, or onto a plane bound for Sweden.

N.P.

Contact: Taxan (UK) Ltd., Tel:(0344) 484646; Eizo (UK) Ltd., Tel:(0483) 757118. Philips Electronics, Tel:(01) 6892166; Hitachi Sales Ltd, Tel:(01) 848 8787; Salora, Tel:(0358) 243011; Expert Graphics, Tel:(0707) 56662.

'A Concise Advanced User's Guide to MS-DOS'

N. Kantaris (Bernard Babani £2.95)

If there are two things you can almost guarantee when you pick up a book published by the Babani stable, it is value for money and quality. To this end, most of the books in thier extensive range cost less than £5. Therefore I am thankful to report — unlike similar texts I could mention — this latest offering is of the same breed; contains 68 pages packed with information plus well laid out contents and index. It covers all versions of MS-DOS from 2.x to 4.x.

In keeping with the advanced user's theme of title, Mr Kantaris begins his book with an overview of ASCII plus the hex, binary and decimal number ing systems. In other words, the sort of things usually reserved for appendices. He continues with a discussion of one very grey area of MS-DOS — ANSI.SYS. Rather than leave the reader floundering with a listing of control codes, the book cites many real examples. The finale of this is a simple menu system based on ANSI.SYS commands.

A similar treatment is offered to the set of batch commands not covered by the normal MS-DOS manuals. For instance did you know it is possible to call othere batch files from one already running? Or, did you know it is possible to include a form of FOR ... NEXT loop in a batch file? It is, but try finding those commands detailed in the normal MS-DOS manuals.

Similarly, do you know how your CONFIG.SYS file work or what it does? All will be revealed — including some interesting improvements. However, I was surprised the STACKS command was not mentioned; something which can save some real headaches. Including the command STACKS 64,128 somewhere in the CONFIG.SYS file can prevent some interesting crashes!

Perhaps the most useful section of this book is its coverage of the DEBUG command. Once again something which the normal manuals only give limited coverage to; if they bother to mention it at all! Although the book does not attempt to discuss 8086/88 assembly language in any great detail, it does show how to write at least simple programs using EDLIN and DEBUG.

This is not a book which will pose much of a threat to the *standard* texts because people will buy them anyway for the one-upmanship value. However, if you happen to own any PC clone, have £3 going spare and a sudden thirst to discover more about your PC — buy this. It is well worth the small investment.

M.S

ISBN 0-85934-209-3

Word processors for the C64 & C128

This article on Word Processors is aimed at C64 and C128 owners who are considering purchasing a Word Processor, but who are unsure as to which features and facilities they should look for. By the end of the article, we shall have considered not only the pertinent aspects or word processors, but also which accessories and hardware may be required.

You will then, we hope, feel confident enough to make the right choice.

To erase text,

Press: CTRL
Press: E
Press: RETURN

The Equipment

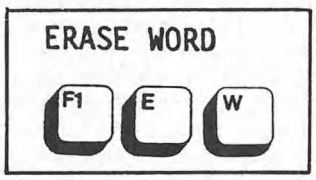
The equipment available to you is a major factor. An 80 column display is the industry standard for almost all text applications involving computers with monitors or VDUs. The C64 is intrinsically unable to provide an 80 column display, having only a 40 column mode, whilst the C128 can provide both. For the occasional letter it will not make much difference which type of display is available, but for more serious usage an 80 column display is definetely to be preferred.

With this in mind, the C64 users have a few choices. You could opt for a straight forward 40 column word processor. This may or may not also have a 40 column limit on the printout. If it does not, you may for example find that whilst the screen displays a maximum of 40 characters per line, the printout can go up to around 60 characters per line.

If you must have an 80 column output, you could alternatively opt for a word processor that uses a 'virtual window' technique. This latter still only displays 40 columns, but the screen display is actually a small window onto a larger 80 column text screen and can be moved around anywhere within the larger area. The advantage of this technique is that the output will be the full 80 columns. If you can, try having a look at the bundled word processor on the Plus/4, which is a good example of this.

C128 users have similar choices. If you posses no 80 column monitor, (a 1901 or compatible), then the 40 column 'virtual window' is available from CP/M, and will be adequate for light usage. If you do own an 80 column monitor, there are a number of both CP/M and 'native' C128 word processors around.

Neither CP/M nor the native 128 operating system could be claimed to be obviously superior to the other, and this fact means that word processors running under one or the other system have no striking advantages. But as a



guide to choosing, bear the following in mind:

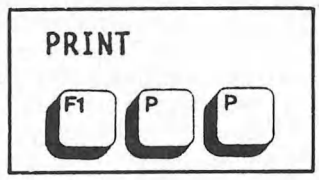
CP/M is now very old. As a consequence it is weak in areas like use of colour etc., but does benefit from a large user base, with several tried and tested word processors available. If portability is important to you, then choose CP/M. This will allow any CP/M based machine (and there are a great many) to run the word processor, and thus access your work.

The native C128 operating system is new, so things like colour graphics are all there. However, the user base is much smaller and prices may well be higher for this reason. Also bear in mind that only other users who own a C128 will be able to access your work.

The Printer

It is easy to forget when marvelling over some of the more esoteric features of a word processor, that whilst the word processor may well support full colour graphics, your printer not. The rule is simple: if the printer cannot do it, you will not be able to use the feature.

For example, new fonts will require a Dot Matrix printer, and not a Daisy Wheel, whilst graphics will require a high degree of printer control, such as found on a Dot Matrix printer with dou-



ble quad density facilities.

If you already own a printer, then be realistic and purchase a word processor with similar abilities. For owners of C64s and C128s a printer is likely to be the most expensive part of your setup, and more so if you go for powerful features. Serious word processing is likely to need one of two printers; a Daisy Wheel printer, will give a professional letter quality typeface. An NLQ Dot Matrix printer will offer a near approximation to this. Finally an ordinary Dot Matrix printer has a typeface suitable only for rough draughts.

WYSIWYG versus Embedded Control Codes

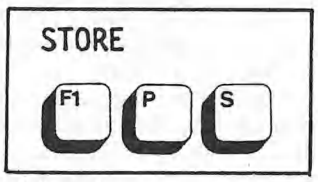
There are two basic approaches to document presentation for word processors. One is termed WYSIWYG (What You See Is What You Get); the other Embedded Control Codes. The former is simple to envisage. It means that at all times the screen display looks exactly as the printed document will. Thus, what you see on the screen is what you will get on the printout.

Embedded Control Codes offer the opposite of this. What you see on the screen may well look totally different on the printout. This is because the various effects that are required (underlining, bold, justifcation etc), are simply 'noted down' within the text with a special symbol.Traditional phototypsetting worked in this way. Once on the screen, this special control symbol will have no apparent effect on the text. For example, if the user had wanted the text underlined, nothing would actually be underlined on the screen. But once a printout is requested, this special control symbol is decoded and will then produce the desired effect. Underlining in this case.

Generally it has to be said that most people prefer the WYSIWYG type of presentation. Especially for novices and casual users, the ability to see exactly how the finished document will turn out as you go along is great help. Only experienced users could claim to be indifferent to this feature.

On the other hand, some powerful word processors with facilities such as multiple fonts or even simple graphics almost always need to opt for the embedded control codes, since screen display of these features would create too many difficulties.

Which to choose must be a personal decision. If you will be an infrequent user, a WYSIWYG display is a sensible choice. But if you will be a heavy user, or one with perhaps graphics requirements, then you may be struggling to find a true WYSIWYG word processor offering what you need.



Spell Checkers

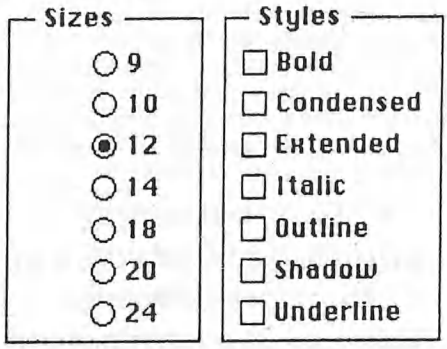
A Spellchecker is an accessory of the word processor, and normally is not an integral part of it. Its function is to check through the document word by word, looking for spelling mistakes; effectively any word in the document with an internal dictionary containing tens of thousands or even hundreds of thousands or words. If a match cannot be found the word will be highlighted in some way, and if you will be offered the chance to alter its spelling, or ignore the word as being corerct, i.e. a valid word not in the Spellchecker's Dictionary.

Spellcheckers are invaluable accessories for word processors and not just for those of us who are bad spellers. Even good spellers are likely to have typing mistakes in a document.

A useful refinement to look out for is the ability to add new words to the dictionary, or create your own 'User Dictionary'. This is especially valuable to those who write peices that employ specialist vocabulary (e.g. Engineers), as it stops the Spellchecker constantly querying every specialist term it encounters. At the same time, this permits it to verify that the word is correctly spelt.

So ask these questions when you purchase a word processor:-

1) Is there a Spellchecker available, either now or in the future?
2) does it come with the word processor, or is it an extra?
3) Can the dictionary be added to, or is it a fixed size?



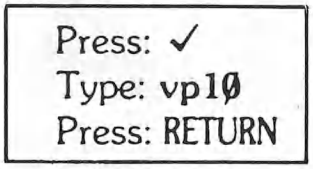
Specialised Uses

If you plan to use the word processor to edit things such as source files for High Level Languages, make sure that it expressly caters for this use. The problem to be aware of is this. Word processors have a tendency to leave non-visible embedded control codes in any text they handle. WYSIWYG word processors of necessity have to use this technique to the full, but even those which offer visible embedded control codes have a tendency to leave a few hidden ones here and there as well. These 'non-visible' codes are perfectly visible to a compiler and will certainly result in tens if not hundreds of compiler errors, and may even cause the compiler to give up entirely.

Check on this point if this is one of your intended uses.

Integrated Packages

If you are thinking of buying a word procesor, you may also like to consider the possibility of purchasing an accounts package (spreadsheet), a Filing system (a database), and a graphics package. But think about it now, before purchasing anything, because then you can consider packages that are designed to work with each other i.e. one



which are integrated.

On Screen Help

Most word processors, besides providing help in the shape of a manual, have some form of help available on screen to the user. This on-screen help is of a special kind. It is not general as the manual, which may even tell you how to wire the plug, but deals only with the commands that make the word processor do its job. Thus, if you had forgotten the exact key sequence to perform a given command say a Block Deletion, you could find the answer without ever leaving the keyboard, by simply turning to the relevant Help screen.

At its simplest level, the on-screen help may consist simply of displaying the main commands with the keys necessary to produce them. Better systems could provide sub-menu access to this information for ALL availabe commands. Finally the most comprehensive Help Menus will offer detailed explanations of each command and its syntax, with explanatory text occupying up to a full screen per command. Cross-references to related commands may be included, and a good system will prompt the user at all times whilst in the middle of a command sequence.

In summary then, check out the basic user-friendliness of the word processor. It really can make all the difference. A word processor that you grow to dislike will adversely affect your productivity, while one which is a pleasure to use will encourage you to make full use of it.

Macros

The macro facility is one of the more powerful features of a word processor, but is not necessarily found on all of them. In use, it allows a sequence of commands to be stored by the word processor and recalled at the touch of a button. This sequence of commands thus becomes a new 'macro' command, usable in the same way as the inbuilt commands.

This feature allows a user to create a new single command that performs a number of things. For example, the following three commands could be united together into one single macro command.

Go to top of next page
Insert a paragraph of text
Move cursor to start of next paragraph

So where might this feature be useful? Those readers who will only be writing letters (or even bestsellers!) will

continued on page 30

A LITTLE LESS TIME...

Following on from last month's review, Mark Smiddy looks at Timeworks DTP's little Sister - Timeworks Publisher Lite.

If you consider Timeworks DTP and Lite are essentially very similar you may well be pondering the reasons behind the vast difference in price. You may also be wondering just what GST have cut out of the package. (It is worth remembering here, Lite is a stripped down DTP and not the other way round.) Here I will be covering mainly any major differences as I see them, so you should have the original review (October 1989 CCI) to hand if possible. The same goes if your knowledge of GEM/3 is limited as the review includes a brief guide to the system.

Bearing those warnings in mind, a quick word about the excellent manual; a real credit to its two authors and the production team at GST. Being smaller than the Timeworks DTP manual, this one is perfect bound - as opposed to ring bound - but this really is not much of a problem.

"you do not have to skip over pages of useless information to find the contents page."

It is split into two sections: the main instructions and the installation guide - which is at the rear. Placing the installation guide at the back seems odd at first but it really is a good idea. First you have to read (or scan) the manual to find it. Second, you do not have to skip over pages of useless information to find the main contents page. Now, as promised, onto the differences.

There is no support for a Master Page. Lite is intended for small documents so there is no need for a Master Page, which, as you may recall, defines a standard layout fo every page. In Lite you must design each page individually. However, I should reiterate, for small documents this is not a problem.

Next, the option to define standard Paragraph Styles has been removed. This one creates more of a problem, though not an insurmountable one nethertheless. Now, in order to create say a headline you have to mark the text and reformat it in the style you require - say 36 point, Dutch bold. Easing the problem slightly, some common paragraph styles - bullets, indents and so on - have been assigned to the ten function keys. The Paragraph menu replaces the Text menu of Timeworks DTP see last month's feature for comparison.

"I was pleasantly surprised to find some of the more powerful options - like kerning and repelling text - remaining in the package."

From the Graphics menu, it is now only possible to crop or edit pictures. It is not possible to scale a picture to fit the document as with the larger package. Also, some of the drawing tools have been removed. Neither of these changes should cause too many problems although scanned pictures will have to be scaled externally. Your scanner software should include such an option but Deluxe Paint PC could probably be used at a pinch.

There are a few trifling changes although they are largely cosmetic. However, I was pleasantly surprised to find some of the more powerful options - like kerning and repelling text - remaining in the package. These help enhance the professional appearance of a Timeworks document and the aesthetics of the finished page.

Overall, unless you have already used the larger version of Timeworks, it is unlikely you will notice any differences at all. On the face of it, Lite looks just as capable of producing documents of the same high quality as the larger version. In all honesty it is, but more effort will be needed to get there. In part, this is the key to the price reduction.

"Lite is an excellent, low cost, ground introduction to the world of Desktop Publishing."

The rest of the saving has been accomplished by only supplying a run-time version of the GEM/3 system which DOES NOT include a GEM desktop. Ask yourself this: do I need a GEM/3 desktop manager? If the answer is no then you can save yourself some money. For occasional use, Timeworks Lite is more than adequate as a DTP system for the home, small club or business. For the more adventurous - that is, those intent on producing a small weekly magazine - the full version is a better bet.

In any case Lite is an excellent, low cost, ground introduction to the world of Destop publishing. It is for this reason the package should find its way into schools. Any LEAs who have not seen it should consider getting it now. DTP is here to stay whether we like it or not and this is a cheap, useable introduction. Frankly the Acorn BBC version - favoured by my local secondary school and produced by Advanced Memory Systems - is poor by comparison.

Both versions of Timeworks are superb value for money and belie explanation of how GST can sell them so cost effectively. I can highly recommend them without any fear of contradiction - it is money well spent.

M.S.

Price: £49.99. Contact: Electric Distribution, 8 The Green Street, Willingham, Cambs. CB4 5JA. Tel:(0954) 61258.

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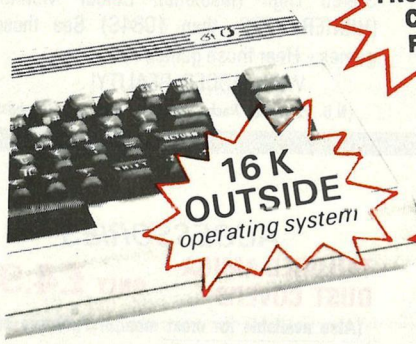
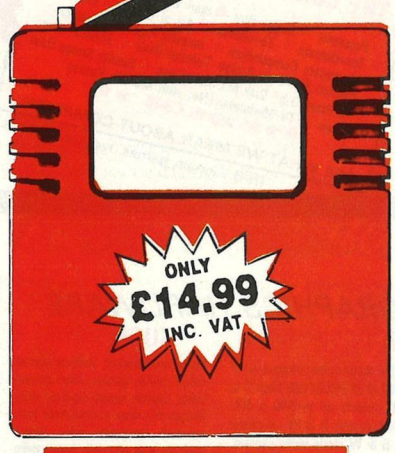


TRADE AND EXPORT ENQUIRIES WELCOME

YOU WILL WONDER HOW YOU EVER MANAGED WITHOUT IT



POWER TOOLKIT

A powerful BASIC-Toolkit (Additional helpful commands) that considerably simplifies programming and debugging.

AUTO	HARDCAT	RENUMBER
AUDIO	HARDCOPY	REPEAT
COLOR	HEX$	SAFE
DEEK	INFO	TRACE
DELETE	KEY	UNNEW
DOKE	PAUSE	QUIT
DUMP	PLIST	MONITOR
FIND	ILOAD	BLOAD

RENUMBER : *Also modifies all the GOTO's GOSUB's etc. Allows part of a program to be renumbered or displaced.*
PSET : *Set up of printer type.*
HARDCAT : *Prints out Directory.*

The toolkit commands can be used in your programs.

DISK TOOL

Using POWER CARTRIDGE you can load up to 6 times faster from disk.
The Disk commands can be used in your own programs.

DLOAD	DVERIFY	DIR
DSAVE	MERGE	DEVICE
DISK		

MERGE : *Two BASIC programs can be merged into one.*
DISK : *With DISK you can send commands directly to your disk.*

TAPE TOOL

Using POWER CARTRIDGE you can work up to 10 times faster with your data recorder. The Tape commands can be used in your own programs.

LOAD	SAVE	VERIFY
MERGE	AUDIO	

POWERMON

A powerful machine language monitor that is readily available and leaves all of your Commodore memory available for programming.
Also works in BASIC-ROM, KERNAL and I/O areas.

A	ASSEMBLE	I	INTERPRET	S	SAVE
C	COMPARE	J	JUMP	T	TRANSFER
D	DIS-ASSEMBLE	L	LOAD	V	VERIFY
		M	MEMORY	W	WALK
F	FILL	P	PRINT	X	EXIT
G	GO	R	REGISTER	$	DIRECTORY DOS Commands
H	HUNT				

PRINTERTOOL

The POWER CARTRIDGE contains a very effective Printer-Interface, that self detects if a printer is connected to the Serial Bus or User-Port.
It will print all Commodore characters on Epson and compatible printers.
The printer-interface has a variety of set-up possibilities. It can produce HARDCOPY of screens not only on Serial printers (MPS801, 802, 803 etc) but also on Centronic printers (EPSON, STAR, CITIZEN, PANASONIC, etc).
The HARDCOPY function automatically distinguishes between HIRES and LORES. Multi-colour graphics are converted into shades of grey. The PSET functions allow you to decide on Large/Small and Normal/Inverse printing.
The printer PSET functions are:

PSET 0 - *Self detection Serial/Centronics.*
PSET 1 - *EPSON mode only.*
PSET 2 - *SMITH-CORONA mode only.*
PSET 3 - *Turns the printing 90 degrees!!*
PSET 4 - *HARDCOPY setting for MPS802/1526.*

PSET B - *Bit-image mode.*
PSET C - *Setting Lower/Upper case and sending Control Codes.*
PSET T - *All characters are printed in an unmodified state.*
PSET U - *Runs a Serial printer and leaves the User-port available.*
PSET Sx - *Sets the Secondary address for HARDCOPY with Serial Bus.*
PSET L1 - *Adds a line-feed, CHR$ (10), after every line.*
PSET L0 - *Switches PSET L1 off.*

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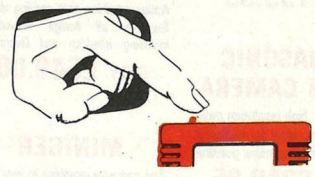
POWER RESET



On the back of the POWER CARTRIDGE there is a Reset Button. Pressing this button makes a SPECIAL MENU appear on the screen.
This function will work with any programme.

CONTINUE - *Allows you to return to your program.*
BASIC - *Return to BASIC.*
RESET - *Normal RESET.*
TOTAL BACKUP DISK - *Saves the contents of the memory onto a Disk. The program can be reloaded later with BLOAD followed by CONTINUE.*
RESET ALL - *RESET of any program.*
TOTAL BACKUP TAPE - *As BACKUP DISK but to TAPE.*
HARDCOPY - *At any moment, prints out a Hardcopy of the screen. Using CONTINUE afterwards you can return to the program.*
MONITOR - *Takes you into the Machine language Monitor.*

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- Workbench 1.3 System Disk
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- Mercenary Compendium
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A7

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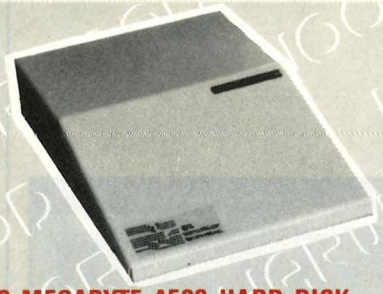

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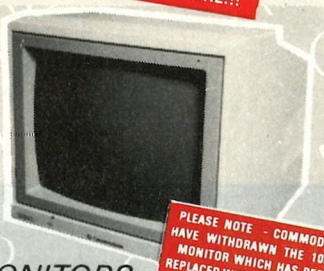

PLEASE NOTE - COMMODORE HAVE WITHDRAWN THE 1084S MONITOR WHICH HAS BEEN REPLACED WITH THE 1084 MONO AUDIO VERSION

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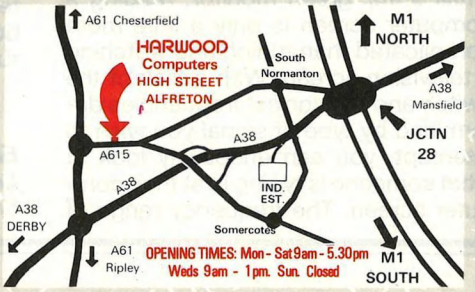

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Feature

WHO'S WATCHING YOU???

Are you positive that your monitor is for your eyes only? Nancy Picard wraps herself up in a trench coat, puts on a battered fedora, and makes her way down the back alley to report...

Paranoia. Pressure. Corporate raiders. Big business. If you have seen the movie 'Wall Street,' then you know what I'm talking about. The stakes are high in the pin-striped world, amd many companies employ different means, legitimate and questionable, to learn about what their competitors are 'up to.'

In this age of technology, computer hacking is a threat to data security for many companies. Bugging devices and other means of monitoring are currently illegal in the UK. But there seems to be at least one way in that rquires no programming knowledge, and is as easy as tuning a knob.

Many people are wary of the harmfui effects of radiation from monitors. But in terms of eavesdropping, radiation could be seen as a beneficial by-product. Computers and ancillaries, such as VDTs, often emit low level radiation, which can sometimes be intercepted and 'read' outside the building. Lorraine Electronics, located in London, are distributing the ELECTRO-MAGNETIC DATA ANALYSING & RECOVERY (EDMAR) unit, a device which can do just that.

Cased in a long black box with a small 9 ins. green monitor, reading a computer screen is only a little more complicated than tuning and watching a television screen. With a flick of the switch and the correct frequencies determined by type of signal you wish to intercept, you can effectively look at what someone is typing in at their computer screen. The frequency range of the device is from 25 MHz to 2 GHz, and has a sensitivity of .5 Micro Volts.

Using the EDMAR unit as a preventative measure, Lorraine can determine if your computer is emmitting the type of low level radiation that can be intercepted. They even offer a service to assess the entire premisses and the office equipment in order to identify the type of device someone would use to 'steal' information.

Obviously, the EDMAR unit could also be used as an information gathering device. According to William Parsons, head of Lorraine's computer division, sales of the unit are heavily restricted. Even though the unit is portable and easy to use, at a retail price of £15,000.00, it seems unlikely that no matter how much paranoia is striking the business world, not many people will be rushing out to buy one for Christmas.

N.P.

Price: £15,000.00. Contact: Lorraine Electronics Counter Surveillance, 716 Lea Bridge Road, Leyton, London E10 6AW.

THE CARE AND FEEDING OF THE C256

Part III

Featured below are the last remaining sections of programs from Paul Bosacki's article on "Fattening your 64". Being able to expand the memory of your C64 to 256K is useful, exciting and doing it Paul's way, cheap.

```
.endm
.macro AddVW value,dest
        clc
        lda #[(value)
        adc dest+0
        sta dest+0
    .if (value >= 0) && (value <= 255)
        bcc noInc
        inc dest+1
      noInc:
    .else
        lda #](value)
        adc dest+1
        sta dest+1
    .endif
.endm
.macro sub source
        sec
        sbc source
.endm
.macro SubB source,dest
        sec
        lda dest
        sbc source
        sta dest
.endm
.macro SubW source,dest
        lda dest+0
        sec
        sbc source+0
        sta dest+0
        lda dest+1
        sbc source+1
        sta dest+1
.endm
.macro CmpB source,dest
        lda source
        cmp dest
.endm
.macro CmpBI source,immed
        lda source
        cmp #immed
.endm
.macro CmpW source,dest
        lda source+1
        cmp dest+1
        bne done
        lda source+0
        cmp dest+0
    done:
.endm
.macro CmpWI source,immed
        lda source+1
        cmp #](immed)
        bne done
        lda source+0
        cmp #[(immed)
    done:
.endm
.macro PushB source
```

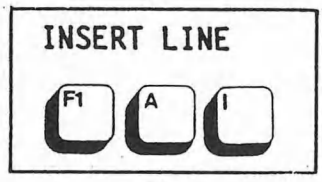
continued on page 30

continued from page 29

```
        lda source
        pha
.endm
.macro PushW source
        lda source+1
        pha
        lda source+0
        pha
.endm
.macro PopB dest
        pla
        sta dest
.endm
.macro PopW dest
        pla
        sta dest+0
        pla
        sta dest+1
.endm
.macro bra addr
        clv
        bvc addr
.endm
.macro smb bitNumber,dest
        pha
        lda #(1 << bitNumber)
        ora dest
        sta dest
        pla
.endm
.macro smbf bitNumber,dest
        lda #(1 << bitNumber)
        ora dest
        sta dest
.endm
.macro rmb bitNumber,dest
        pha
        lda #[~(1 << bitNumber)
        and dest
        sta dest
        pla
.endm
.macro rmbf bitNumber,dest
        lda #[~(1 << bitNumber)
        and dest
        sta dest
.endm
.macro bbs bitNumber,source,addr
        php
        pha
        lda source
        and #(1 << bitNumber)
        beq nobranch
        pla
        plp
        bra addr
    nobranch:
        pla
        plp
.endm
.macro bbsf bitNumber,source,addr
.if (bitNumber = 7)
   bit source
   bmi addr
.elif (bitNumber = 6)
   bit source
   bvs addr
    .else
       lda source
       and #(1 << bitNumber)
       bne addr
    .endif
.endm
.macro bbr bitNumber,source,addr
        php
        pha
        lda source
        and #(1 << bitNumber)
        bne nobranch
        pla
        plp
        bra addr
    nobranch:
        pla
        plp
.endm
.macro bbrf bitNumber,source,addr
    .if (bitNumber = 7)
       bit source
       bpl addr
    .elif (bitNumber = 6)
       bit source
       bvc addr
    .else
       lda source
       and #(1 << bitNumber)
       beq addr
    .endif
.endm
```

continued from page 23

not be constantly using it. But users whose work will contain significant elements of design, as for a newsletter for example, or users who have other needs such as source code editing will



find the macro facility a real bonus.

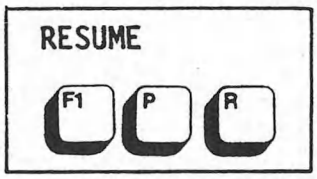
In essence, such a fit allows the constituent packages to be used together as though they were one package, sharing all data between themselves.

To illustrate the potential benefits of this, consider one possible use. A user wishing to produce and mail a financial report on the month's trading might proceed as follows:-

The Spreadsheet would be accessed and the required figures for the month saved to a special data file. Moving to the compatible graphics program, the user would load up this data file, and produce a bar chart from it. This chart could then be saved out as a special graphics file. Loading the word processor, the user begins the report proper. From here on, wherever the user wishes to insert either the table of figures, or its bar chart equivalent, he may do so merely by calling up the appropriate data file.

As a final step, the 'mailshot' option will automatically access the database files for names and addresses of recipients of the report, and the letters duly made out.

Although very simplified, this example gives an idea of the sheer range and scope or operations that can be quickly and easily linked together. If this example sounds like just the sort of thing you need, or if you foresee a future need similar to this, then plan for it now. Look for either a word processor for which you can later buy the other packages to form an integrated system, or go for a complete system first time.



Desk Top Publishers

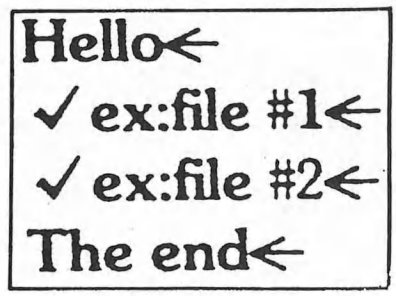
At its simplest, DTP can be thought of as a word processor with the ability to incorporate graphics from within the package. Obviously ordinary word processors can be used with graphics, but these would require blank spaces to be left in the text and pictures added later. DTP packages can manipulate text AND graphics together, so the graphics do not need to be added in separately. Note also that DTPs can manipulate the work to a very high degree, providing such facilities as rotation and magnification of the text/graphics in any direction.

A simple application for a DTP package would be in the production of a club magazine, or a handout advertising some event, where graphical inserts and/or patterned border were required.

Thus, some readers may like to review their likely needs from a word processor, with a view perhaps to getting a DTP package instead. Certainly if graphics and text manipulation are going to form an integral part of your end product, think about it.

But again a note of caution. Prices for DTPs typically start where prices for word processors finish. i.e. the most expensive word processors cost around the same as the cheapest DTPs.

A.K.



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- COLOUR TRAIN: PLAY AT SPOTTING COLOURS
- PICK A LETTER: EASY STEPS TO WORD BUILDING
- SPELL A WORD: ENJOY NAMING THE PICTURES
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- BOUNCE: GET TO GRIPS WITH ANGLES
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- SOUVENIRS: AN INTRODUCTION TO TRAVEL
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- MYSTERY MACHINE: CODE-BREAKING FUN
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	FUN SCHOOL 2 OVER 8's					
					P&P	
					TOTAL	

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Charts

Chart Chattering Happenings

Bang! Crash! Wallop! Straight in at Number One! Now that's what I call Dangerous! These days the rejuvenated (Come back, Paula Byrne, all is forgiven!) Telecomsoft labels Firebird and Rainbird seem to be firing off new releases as if they've got so much ammunition that they don't know what to do with it... And with titles like the fizzing Rick Dangerous hitting the Charts first time at the Top Spot, Microprose must be raking in the cash to recoup the zillions of bucks they shelled out for Telecomsoft. And Ricky Dicky is not just proving to be dangerous to other 8 bitters but is hammering away at the elite Amiga five too.

There is another chart novice in at Two. Ocean (We'll buy the Pacific shortly with the profits from the game) have really put New Zealand on the map (It is just next to Manchester!) with the eponymous game selling like crazy on both 8 bit and 16 bit formats. U.S. Gold's well promoted Indiana Danielle, sorry, Jones is another fast-rising new entry.

For the Amiga, Ocean's Antipodian Saga grabs Numero Uno pushing USG's Forgotten Worlds down a place. Micrprose's new label, Microstyle, gets its name in Chart lights for the first time with the hot RVF Honda. Watch this motorbike thriller, it's accelerating up the rankings...

here is one stayer at the Top Spot. In the Cheapo Chart, Yie Ar Kung Fu grips it tightly. But is that any wonder for £2.99? Ocean, Sorry, their budget label The Hit Squad, is giving great value and it will probably sell millions - so they'll buy the Atlantic too!

The Pick of the Month? Why not try a quiet spot of 3D Pool or play the terrific Kick Off on the 64? Don't miss it! It's better than being Liverpool against Crystal Palace!

Z.M.S.

GAME TITLE *C64*	COMPANY	LAST MONTH	RATING	PRICE
1. Rick Dangerous	Firebird	(–)	Mega	£9.99
2. New Zealand Story	Ocean	(–)	Mega	£9.95
3. Silkworm	Virgin	(1)	Mega	£9.95
4. Forgotten Worlds	U.S. Gold	(3)	Mega	£9.95
5. Indiana Jones	U.S. Gold	(–)	Crisp	£9.95
6. Speedball	Imageworks	(2)	Mega	£9.95
7. Licence to Kill	Domark	(5)	Crisp	£9.95
8. Red Heat	Ocean	(4)	Crisp	£9.95
9. Kick Off	Anco	(–)	Mega	£9.95
10. 3D Pool	Firebird	(–)	Crisp	£9.95

AMIGA				
1. New Zealand Story	Ocean	(–)		£24.58
2. Forgotten Worlds	U.S. Gold	(1)		£19.99
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BUDGET		
1. Yie Ar Kung Fu	The Hit Squad	(1)
2. Pro Power Boat Simulator	Codemasters	(5)
3. Pit Stop II	Kixx	(2)
4. Rally Cross	Codemasters	(4)
5. Match Point	The Hit Squad	(–)

WIN! WIN! WIN!

The Untouchables on video!

PLUS

Gallons of games and T-shirts!

Here at CCI we jump at the chance of featuring Ocean. Such a sea of inspiration for naff puns and obvious titles, it's brilliant! So when they offered us a trawler-load of prizes for you lot, we couldn't believe our luck! Yet more opportunities for dextrous word-play concerning the industry big fish. A wave of excitement ran through the CCI offices as a multitude of corny headings and coverlines flowed from the lips of all around. We threw out "Something to Carp About!" after the Ed insisted we stick to salt water subject matter. Someone suggested "Ocean Go Under!", before realising they were the UK's most successful software house. "Water Line-Up!" was another left on the cutting room floor, as was "Ocean Haul in Record Catch!" and "Splash Out!".

Well, you'll be pleased to hear we fished out the answer in the end, and what's more, we even remembered to set the competition itself! Whilst we're onThat subject, you may be interested in what's on offer. For the first five out of the hat, there's a video each of The Untouchables. The following twenty lucky entrants will be in receipt of a copy of the game of the film, hot off the Ocean presses.

Fate will also be on the side of the next ten, whose backs (and fronts!) will soon be covered in incredibly trendy Ocean T-shirts! Just answer the following questions correctly, write them on a postcard and stuff them in a letter box (with a stamp,on the postcard, not the letterbox!)

1. Unscramble these words to find three inhabitants of the ocean.
a) NAMRIL
B) CUREASHIN
C) BARC

2. Name Ocean's first coin-op licence.

3. What is the connection bwteen Amiga Batman and Spectrum Chase HQ?

4. Complete the following in no more than 15 words:

My favourite Ocean pun is:

Entries to:

UNTOUCHABLES COMP.
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40 BOWLING GREEN LANE
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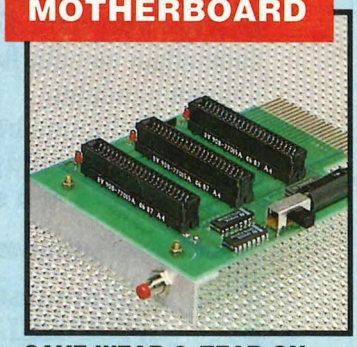

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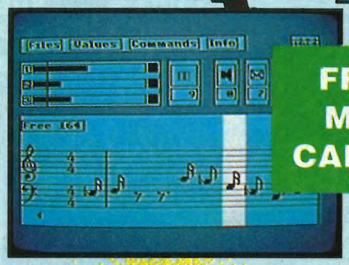

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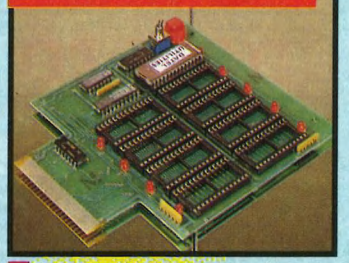

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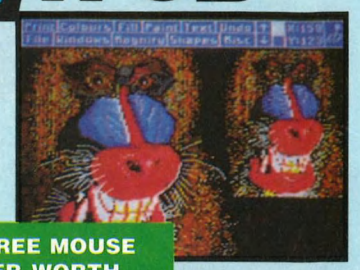

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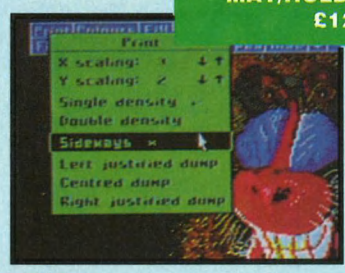

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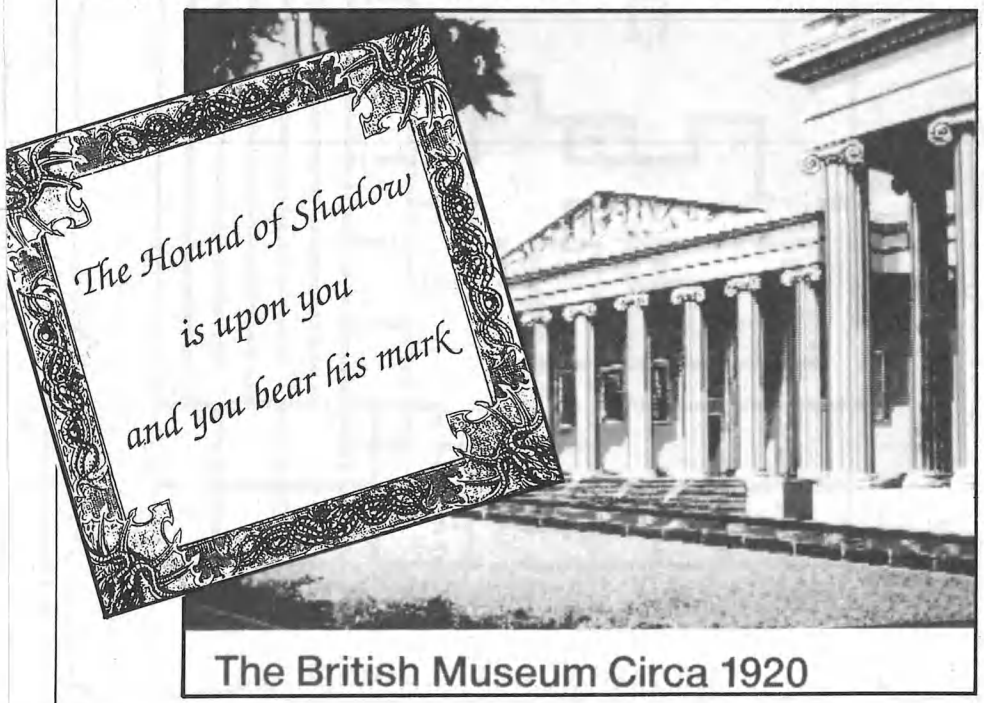
Adventure

BY ANDY MOSS

Another month's adventure chronicles are opened with the news that yours truly nearly didn't make the deadline. My WP contracted not one but three deadly viruses, and the fate of all my copy hung precariously in the balance for what seemed an interminable amount of time. Fortunately I obtained VIRUS KILLER from CRL which did the job for me, and I can recommend the program without hesitation. After that scare, I promptly cleansed each piece of software I had, and to my horror found quite a few more infected disks, mostly with BYTE WARRIOR, a horrible virus that actually kills off pieces of code rendering your game unusable. Anyway Virus Killer quickly dispatched every bit of the vermin and I now have a squeaky clean office.

This month we have some interesting releases for you, Infocoms ARTHUR, SSI's CURSE OF THE AZURE BONDS, and a curious one from Incognito/Gainstar called KINGDOMS OF ENGLAND.

But first some news about HOUND OF SHADOW. Over the last few weeks, there have been some strange parcels coming in the post from Electronic Arts. First a note that said 'The Hound of Shadow is upon you and you bear his mark.' Nothing else. How curious. Then a copy of HP Lovecrafts collection of short horror stories, with a note that said 'the hound has touched you'. Even Curiouser! Then, a screen shot of The British Museum circa 1920, along with an application form for membership of the Reading Room! This is all very strange and all part I am sure, of EA's master plan to take over the World. Or at least hype us all up to fever pitch waiting for the adventure to come out.



The British Museum Circa 1920

ADVENTURE MAILBAG

A PLEA FOR HELP FROM A FELLOW ADVENTURER WHO HAS BEEN STUCK FOR OVER TWO YEARS CAN ANYONE HELP?

Dear Andy

Help me, I have been stuck on Hitchhikers Guide to the Galaxy for over 2 and a half years, I just cannot get anywhere on Zaphods ship.

I have connected the spare improbability drive to the control console, and the plotter to the spare drive but nothing happens! I also cannot pass the screening door, I know you have to make Marvin a cup of tea but all I have got is tea substitute.

Phil Graham, Hull

Come on out there, this boy's in trouble. Answers on a postcard by return of post please. But just to whet your appetite Phil, you get past the screening door by showing it something improbable. Like a key, then no key, it will not be able to work out where the key went. The door leads into Marvins workshop. To get the drive to work you need to dip it into something for fuel.

Dear Andy

G'day from Australia. I have had an Amiga for just over a month, and before that I had my 64. I bought

Bards Tale III and Heroes of the Lance, and found I really like RPG's. In Lance, I have nowhere else to go, apart from the Baby Dragons, what shall I do. Can you please recommend any good RPG's.
Mark Coster, Queensland

My particular favourites are Wasteland, and the Ultima series, both of which are quite difficult. For something a tad easier, I would suggest Might and Magic or Questron

ADVENTURE NEWSDESK

MIRRORSOFT BLOODED?

The setting for Bloodwych is a large and rambling castle with a labyrinth of tunnels, strange inhabitants and plenty of dark secrets. The castle also holds the key to absolute power with four hidden crystals which when they have been found and kept can be used to make two awsome spells. One will banish evil for ever, the other will ensure that it prevails for all time, and you get to choose. Two players can play at the same time controlling separate parties, either in opposition or interacting together, or one player can play solo. Either way it sounds a hoot, and seems from the screenshots here, visually similar to Dungeon Master, although that I am sure is where the similarity stops. I do like the split screen option though, that sounds well worth looking into.

A RAINBOW MUMMY?

Rainbow Arts, hot on the heels of Joan Of Arc, and the awful Journey to the Centre of the Earth, are soon to release MYSTERY OF THE MUMMY. Using sepia type graphic pictures, the game is a detective whodunnit where you get 5 days to find out the secret of the curse that has befallen those that have become involved with an African Mummy. You get newspapers to read for clues, a chauffer driven car, and the use of a telephone in your hotel room. Set in Germany around 1912, there is a distinct antique atmosphere about the adventure, not the price though C64 disk £12.99

NEW INFOCOM RPG

Hot on the heels of Battletech, comes MINDS OF TITAN, a new role player from Infocom, though developed by Westwood Associates. I was not entirely sure about Battletech, so for my mind something similar would not be such a great idea. BUT it might be better...

EPYX MOVE ON RPG

Whils still on the RPG theme, sports specialists Epyx have announced an RPG entitled THE OMNICROM CONSPIRACY. An adventure set in space, it has all the hallmarks of the necessary ingredients for success, sex, drugs, horny women, booze and assasins. With all that to contend with how can I refuse a copy?

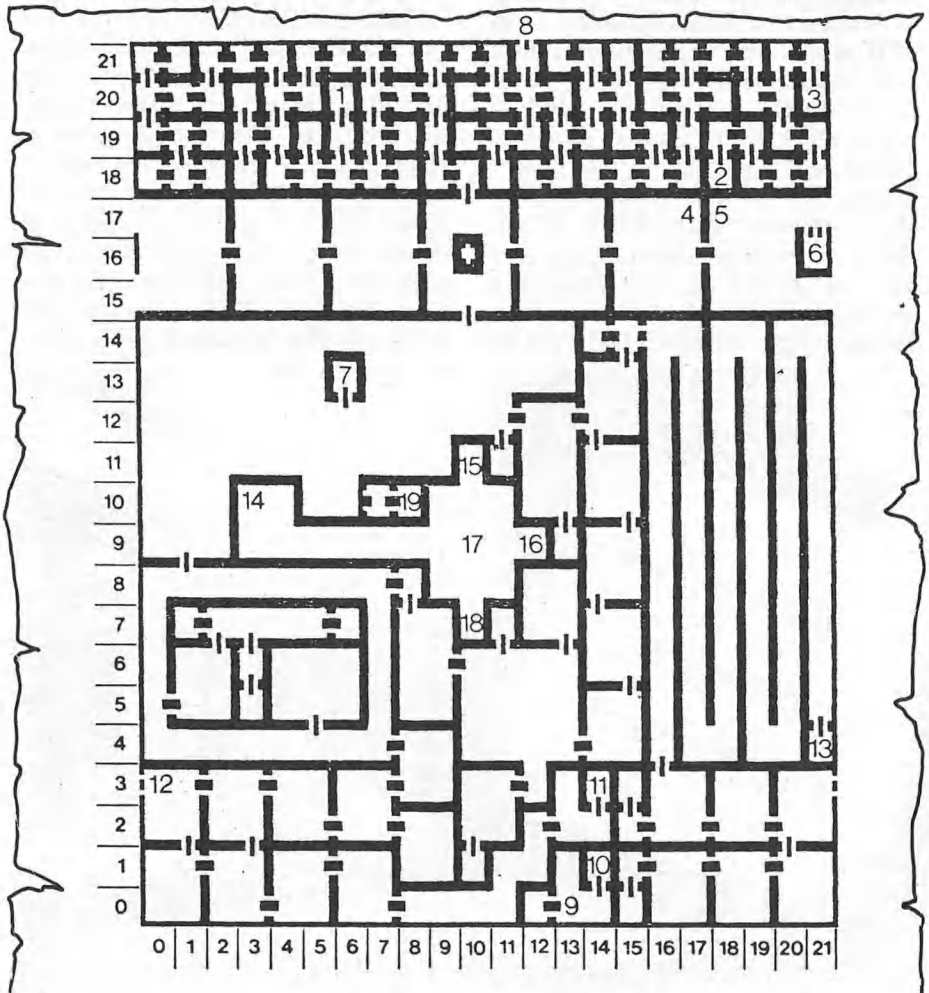
INFOGRAMME RPG

Yet another RPG this time from Frenchies Infogrammes. This one called DRAKKHEN has been on the drawing board for over a year now. Les RPG's are very popular over in La Belle Francais, and having spoken to Henri Laconte, the UK boss, it seems that there will be much oohing and ahhing over the graphics and gameplay. I just wish that for once they develop some games on a Commodore machine first rather than evrything on ST, then we wont have to wait so long. Apparantly it has taken five of France's best programmers and designers to finally come up with the finished version.

BARDS TALE II SOLUTION CONTINUED

THIS MONTH, THE TOMBS ... LEVEL THREE

The battles are now truly fierce. Often now, we choose to avoid confrontations 1) On the wall here are etched these words 'AGE BEFORE ALL OTHERS WHEN THE TIME IS SHORT. FOR THE LAST MUST BE FIRST' 2) Written here are the words 'THE WON FLAME IN ANCIENT GRIP, MIGHT CAUSE THE CLOUDY ONE TO SLIP..' 3) Another message; 'A PARTY OF SICK PEOPLE MIGHT ESCAPE WHERE THE HEALTHY FAIL'. Odd? How can this be. 6) Another one 'THE STAFF OF OLD, ONCE LOST, ONCE SOLD, NAME IT TO HE OF PUREST GOLD'. Andreas records these messages but are they of any value? I



THE TOMBS, LEVEL THREE

continued on page 40

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Commodore 64

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continued from page 38

fear that all they will do will lead us to our deaths. 7) A mysterious voice whispers 'AND THE OLD SHALL LEAD THE WAY' so, some of these messages are related perhaps... 8) We find a single portal of wraparound magic! We step through to 9) we find an old man dressed in gold and performing tricks with fireballs. He says to us 'THE NAME OF IT IS THE STAFF OF...' He waited for an answer. Andreas, I cried, this is the clue 'name it to he of purest gold' this is the one! We answered 'OLD' and the man smiled and said, 'correct, now go to the sage in the wilderness and ask him of Fanskar. He will charge you a price, but the information will be valuable.' Then he vanished.

12) Another wrap around portal. Through it we come to some switchback corridors, windy passages and a small teleport room in 13. A voice said 'YOUR TIME DRAWS NEAR MORTALS, ANSWER ME OR PERISH.'

The Bard said the puzzle would need to be solved quickly before the time ran out. An old man joined us, 16) We found a pool of foul diseased water, which Andreas insisted everyone drink from, as the clue we were given suggested that we would soon come across a foe who could only be defeated by those who had drunk from the pool. 17) we defeated a toxic giant, and then healed ourselves from the poison of the pool. A torch appeared in our gear which we gave to the old man (remember the clue). We returned to the voice, and it said 'WELL DONE, YOUR WAY LIES CLEAR, BUT MY TIME WILL COME.' 19) We explored further and found a section of the broken Destiny Wand! We cast the Wizard Wall Spell and returned to Tangramayne.....TO BE CONTINUED.

ADVENTURE REVIEWS

CURSE OF THE AZURE BONDS US GOLD/SSI

After a successful run with Pools of Radiance, SSI have finally released Curse of the Azure Bonds with a promise of more to come. The program works as a stand alone adventure, so it is not necessary to have played Pools, although it helps to have had an understanding of the game system. The adventure opens with you awakening amongst members of your party after having been attacked and knocked unconscious, to find five azure blue symbols on your arm, that will not come off. It seems that when the symbols glow, your will is completely taken over and you must do their bidding. Your one hope, is to search for the ones who created the bonds, and convince them it was all a mistake!

Turning to your party members you realise they are in the same boat, not only that but all your possesions have been stolen. There you are, in a town called Tilverton, with no money and no weapons. What to do? Only one thing really, start exploring and get into a few fights and earn some money. Creating your party is the first deed to be done though, and there are six classes of character to choose from (saved characters from either Hillsfar or Pools can be loaded in) plus a new feature, dual class player types. High level player types are attainable, Paladin, Ranger Lord, Master Thief, and they all bring about a healthily mixed party.

Before long you find a cache of treasure, and in a nearby building are hidden some weapons, so starting off is not so painfull afterall. The City of Tilverton is not all that large, so mapping the place is easy, and you will find a school for training in there. However, there is a lot more to Azure Bonds than Tilverton. In fact there a more than a few sub plots to keep even the most experienced adventurer busy. Culminating in the rescue of the Princess Narcacia of Cormyr along with the King, you will meet the Fire Knives Tribe, and a host of new monster types . The screen is a Bards Tale type, with movement seen from a box top left of picture, and info on the party and hit points etc on the right. All the text runs along the bottom of the screen, until a combat situation occurs. Then the screen changes to a split down the middle approach with action on the left and status on the right.

All in all a worthy successor to Pools and Hillsfar, and proof that SSi are committed to bringing the thrills and spills of the original Dand D to our computer screens.

PERSONAL RATING..... 9

ARTHUR INFOCOM £19.99

Now here's a hoot, Arthur, England's most chilvarous King and founder of the ledgendary Round Table stars in an adventure that has him turning into more animals than you find in London Zoo, courtesy of Merlin and his magic. Written by Bob Bates, who penned Sherlock and The Crown Jewels, Arthur is less about historical accuracy and more about adventure entertainment. Compare this not with Level 9's Arthur for never the two shall meet except by name only. The plot is completely different for a start. You begin the game as a mere novice youngster, who stumbles upon the famous sword Excalibur in a churchyard embedded in stone. When you go to pull it, Merlin appears to inform you that you are not yet ready to become King and must earn the right first. With that, King Lot turns up to claim it for himself, by removing the whole stone to his castle. He appears later waving the sword or possibly a copy to the assembled crowd proudly proclaiming himself as rightful owner. Here the adventure starts taking shape, as you endeavour to develop the qualities of Kingship, wisdom, chilvary and experience. There are many sub plots to get your teeth into, and the resident Infocom humour abounds throughout the story. One of the first tasks is to find merlins cave and learn all about changing your appearance after a long talk. What this acheives in fact, is a whole host of puzzles that otherwise could not be used. You get to be a Badger, Owl an Eel ,even a turtle, I mean you try flying around and still try to remember where you left all the objects you've amassed.

My favourite is the village idiot (well he would choose that wouldn't he? - ED) who struts about the village square talking nonsense it seems, but we all know he is a vital character, don't we? There is a nasty ghost rider, who rides about stealing all your hard found items, and his demise is rather ingenious.

It is also nice to see that Infocom have at last dispensed with their door opening hassles and open and close them automatically,(providing of course that you have the key!

An entertaining yarn, and well worth adding to your Infocom collection.

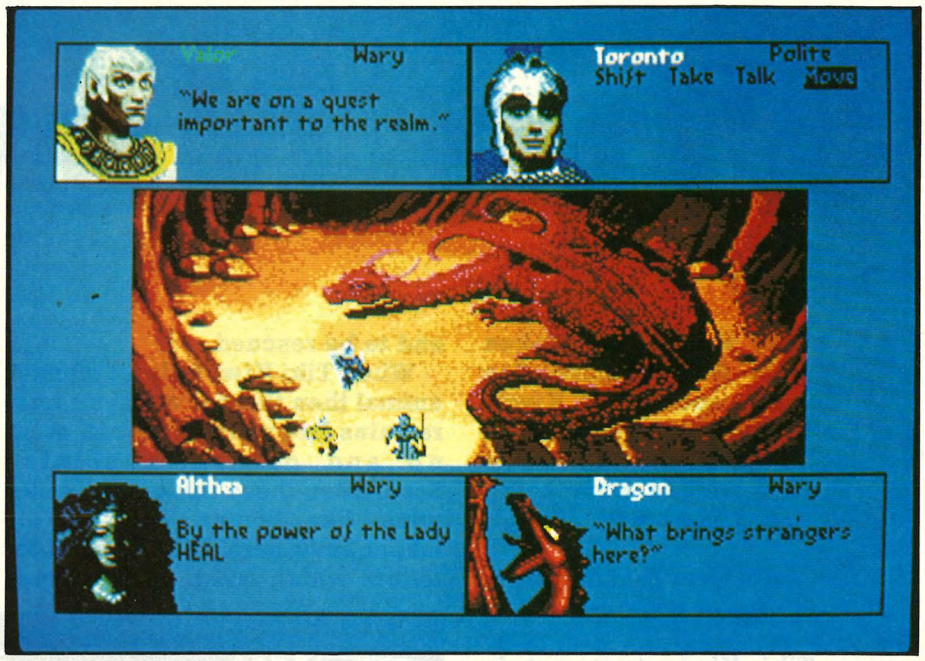
PERSONAL RATING..... 9

KINGDOMS OF ENGLAND INCOGNITO/GAINSTAR

If ever there were a Defender Of The Crown II this would be it. Based on the same scenario of winning land throughout England in the time of Knights and princesses, and trying to end up as King, Kingdoms goes a lot further forward and becomes in the end a real strategy war game. Up to four players can play, although one disappointment was that if you are playing solo against the computer you do get no graphic battle sequences. The play then is just a matter of moving from one territory to another amassing and splitting armies as you go, and seeing battles decided Defender-style in a box showing both sides army total figures. Some very pleasant music heralds the opening sequences, and twice a year you get to take part in an archery contest. This gets you more money to buy more armies and equipment. I wouldn't call the game user friendly

particularly, clicking on words is rather awkward, and the manual is fairly sparse on information, and most of the time you are left to work out for yourself just what to do.

Gainstar did tell me that the game can be completed in 2 hours. Well if this is the case, then the only way to play the thing would be between friends which rather limits the value.


Valor Wary
"We are on a quest important to the realm."
Toronto Polite
Shift Take Talk Move
Althea Wary
By the power of the Lady HEAL
Dragon Wary
"What brings strangers here?"

PERSONAL RATING..... 5

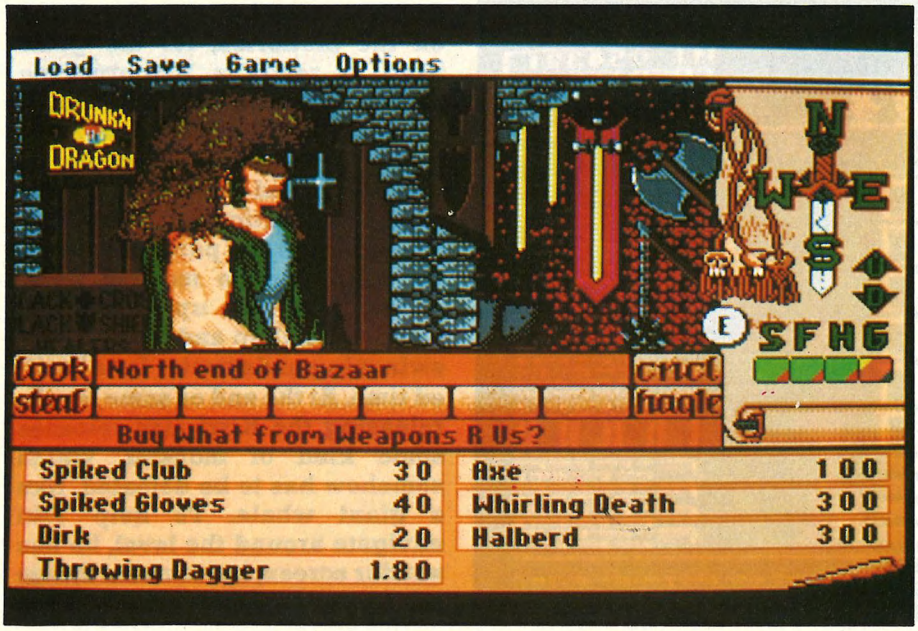
ADVENTURE NEWSLINE

ELECTRONIC ARTS HAVE ADVENTURE TRIO WAITING

Soon after news of HOUND OF SHADOW had reached me came news of yet two further adventures in the pipeline at EA.

▼ KEEF THE THIEF (see pic) is a tongue-in-cheek role player that features arcade-style combat action seen through the player's own helmet visor viewpoint. It is a story about Keef's quest to become the new God King by reassembling a magic statue that has been broken into six pieces and scattered around the kingdom.(Now where have I heard that one before). Keef is a master thief who learned his craft in the Temple of Mem, where the priests tried to train him in the art of magic and battle, but mastering nothing except stealing well. There is treasure to be found and cities to explore, and quite a few 'stunning graphics'.

▲ The second release is titled SWORD OF TWILIGHT and is billed as a multi-player fantasy RPG. Up to three people can play it independently, in their quest to find seven enchanted swords scattered once again throughout seven other lands ruled by evil Shadowlords. The location of the swords will be discovered through finding clues and won back through magic and combat. In other words a good old Hack and slay with a difference. The characters have memories, attitudes and appetites and use a conversation system that is contained in the boxes that surround the screen layout (see pics). The adventure has been written by the authors of Archon, Freefall Associates, and utilises many of the combat routines found there. Watch this space for more info. Expected release dates for all three is around middle October.



OUR TIME IS AT AN END ONCE AGAIN MY FRIENDS, BUT FEAR NOT, FOR NEXT MONTH A FULL PC SHOW ADVENTURE REPORT AND A REVIEW OF OOZE PLUS MUCH MUCH MORE.

The New Ze

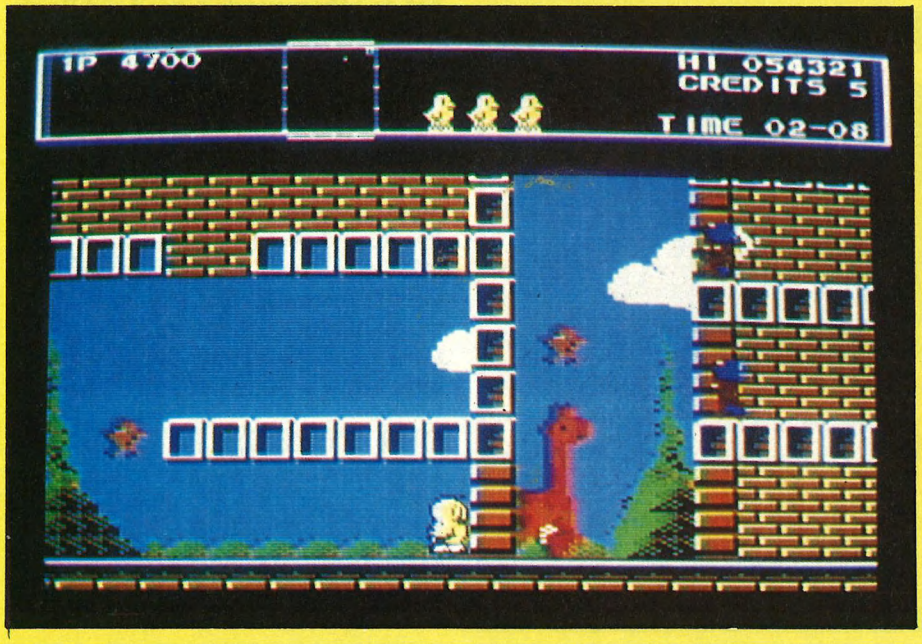
Ocean

Wally Walrus has broken into New Zealand Zoo and captured 20 Kiwis. But the Kiwis friend, Tiki Kiwi, is coming to the rescue, in order to prevent his friends from being stuffed and served with Wally's tea.

Thus starts New Zealand Story, which is Ocean's conversion of the arcade game of the same name. Tiki Kiwi starts out in Wally's domain armed with just a bow and arrows, and has to contend with boomerang throwers, rabbits that throw things, frogs, bats, little dragons and a whole plethora of other creatures. The game is split up into 20 areas, each of course with a Kiwi at the end to be rescued.

"Many levels involve flying around instead of walking on the platforms, for the game itself is really a platform-type arcade game, a lot like Giana Sisters."

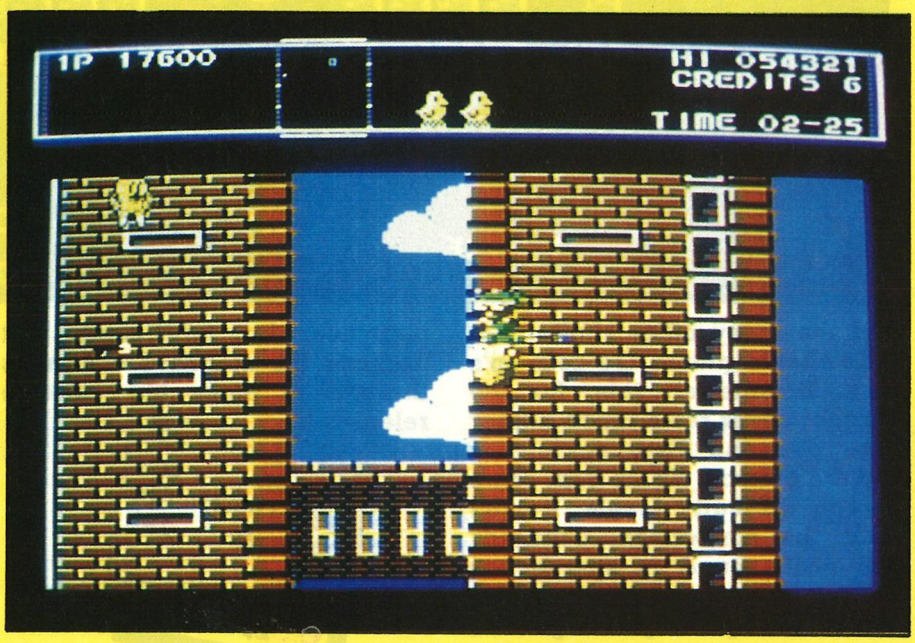
When Tiki Kiwi kills an enemy animal then there is always some remains left, which Tiki can pick up and get extra points. Sometimes these things are weapons, like bombs, fireballs or lazers, invulnerability potions, or letters which make up the word 'extend' to gain an extra life. Tiki can also swim underwater, but most of the time, there are baddies flying around the room on giant ballons or riding geese, etc. (there is even a spaceship on one level). Tiki can jump up and push the baddie off the balloon, etc and take control. Many levels involve flying around instead of walking on the platforms, for the game itself is really a platform-type arcade game, a lot like Giana Sisters. But in New Zealand Story there is a lot of freedom of movement and choice in how to tackle a particular level. For example, one one particular level, the Kiwi can do most of it by either jumping up platforms, stealing a ballon and flying, or by swimming underwater for a limited time. At the end os some levels, releasing the Kiwi also releases some kind of monster, which somehow has to be defeated, like a giant whale. To help Tiki navigate around the level, he has a radar screen, but to make things a bit harder, there is also a time



aland Story

limit on each level.

The graphics in New Zealand Story are superb, especially that of the Kiwi, which, for some strange reasons, does not actually look anything like a Kiwi, but more like an Easter chick (Ahhhh.), which is more in line with this type of game. The chick



is beautifully drawn, and cleverly animated, for example, he call fall any distance, for although he cannot use his wings to fly. He opens them up and 'glides' down. The baddies are also quite good,

"The pace of the game starts off quite slowly and very gradually builds up, so the first few levels are very easy."

but not as impressive as the Kiwi. In the background can be seen pictures of giraffes and elephants in a nursery style of drawing.

There is also the usual background tune, which is good and does not really get annoying, like most arcade tunes. The pace of the game starts off quite slowly and very gradually builds up, so the first few levels are very easy. When I first played the game my first thoughts were to how invincible the Kiwi is, as the baddies are quite slow, andthere is the unlimited supply of arrows as well as the ability to fall from great heights. Eventually the pace does hot up, but the game is still quite relaxing to play.

The worst thing about New Zealand story is really the plot, which is childish (but not really more childish than shooting aliens, I suppose), and would turn off many arcade players. This is a shame, for New Zealand Story is a perfect arcade conversion, with none of the gameplay being lost, unlike most arcade conversions. The game is very addictive and great fun to play.

R.G.

Graphics:	90%
Sound:	83%
Playability:	90%
Overall:	88%

Shinobi

Virgin

Shinobi appeared in the arcades at a time when I was into Rolling Thunder among other coin-ops, and the similarities between the two attracted me. But for the graphics, there is very little difference it would seem, but Shinobi never grabbed me as Rolling Thunder did. All the same, whilst not being one of the most talked-about coin-ops, it did manage to gather a respectable following.

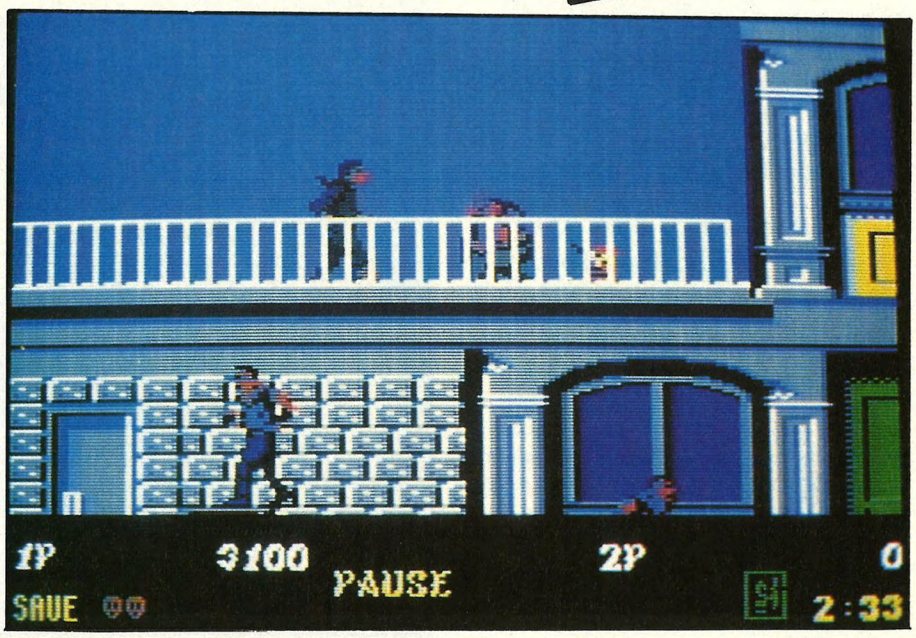
Again the scenario writers have tacked onto the game another hackneyed background story. Some evil character has kidnapped a bunch of kids, and its up to you to rescue them. The kids are gagged and bound, and spread throughout levels. With a pocketful of shuriken, the ninja sets about his task. Of course the abductor knew you would be here soon, so the levels are patrolled by his henchmen. Some are unarmed, and these are usually no trouble. The gunmen however, can definitely give you a spot of bother. Now and again you will come across a cowardly warrior crouched behind a big shield. These are easily dispatched with a low kick.

On the whole the controls are well designed, with the kick automatically replacing the throw/shoot actions at close range. However, jumping from one level to another is a little more awkward, calling for a combination of a sustained press of the fire button with the stick pushed forward. Not a grave imperfection, but it can be annoyingly sluggish in tight spots. After the first level, gameplay continues in a similar vein, broken up by occasional sub-games (the first of which is a tad unfair).

A surprisingly good job has been made of the graphics. Despite the unavoidable step-down in resolution, the sprites and backgrounds are very accurate copies of the originals. The way the gunmen reload is identical, and the many other similar details should please the coin-op's fans. Despite all this, for me Shinobi never rated much higher than pleasant. Then again, nor did the coin-op. Apart from some erratic difficulty levels, I can't fault the conversion. Graphics are neat, sound is sparse but doesn't irritate, and the gameplay is a cinch to pick up. It is good to see programmers are still putting their heart into 8-bit games. Let us hope the standard continues through to those big yuletide releases.

Graphics:	85%
Sound:	60%
Playability:	74%
Overall:	76%
Price:	£9.99 (cass)
	£14.99 (disk)

T.H.

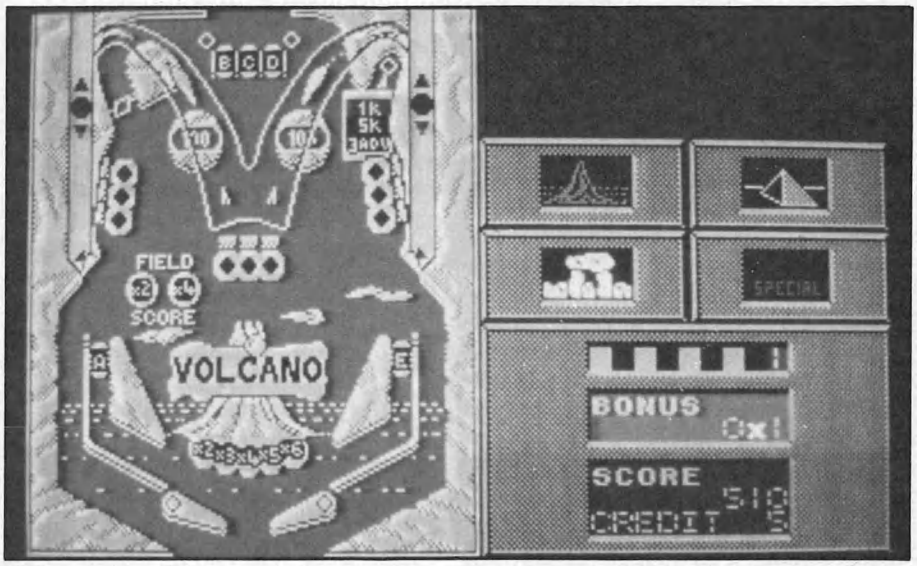


Time Scanner

Activision

There are very few decent pinball games on the market at the moment, the only playable one that I can really think of is the ancient Slamball which appeared on the Americana budget label some while back. Time Scanner came out in the arcades some time ago and even then I always found that the real thing was much more entertaining. As the action involves you more intensely. Time Scanner is a little different to the usual pinball game as each table is split into two screens.

The story has it that in order to escape from an unexplained time warp you must complete four pinball tables...I see(?). You start off with four balls, these are lost when they go either straight down the middle of the bottom screen, or down the side at the very edges of the table. The basic idea is very simple, just try to prevent your ball from going past your flippers and out of play, while it clocks up points bashing into the various bumpers and lights.



To control the ball you can use either your left or right flipper, you can also tilt the table to nudge your ball out of danger. When all your balls are lost the game is over, but you get the chance to play an extra ball if a random two figured number matches that of your score. You can also continue play as you would in the arcade.

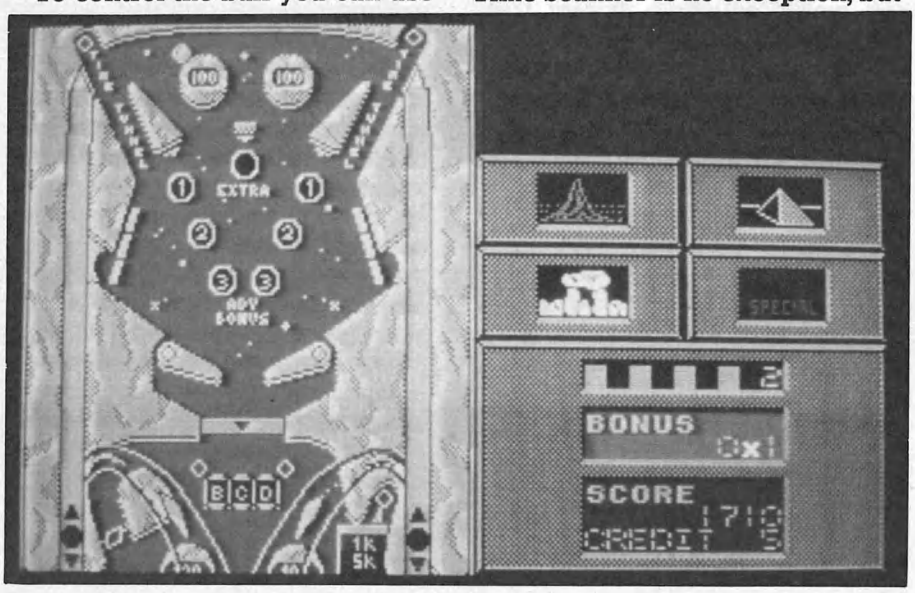
The thing I like about pinball games is that they are really easy to get into and play straight away. Time Scanner is no exception, but apart from this there is little else going for it. The graphics remind me of Xybots', in that they are shapeless and very low on colour. The ball movement is very slow and jerky, enough to give anyone a headache within a few minutes.

The slow movement affects the gameplay enormously leaving it unrealistic and boring to play.

The game's strongest point is the music. It's not very remarkable but the catchy tune matches the game reasonably well. Sound effects are also just about acceptable.

If you are really desperate for a decent pinball game I am afraid you're going to have to wait a little longer, because I can't recommend Time Scanner to even the most avid of pinballers. You will do far better digging out that old cheapo I mentioned earlier.

D.H.



Graphics:	29%
Sound:	52%
Playability:	20%
Overall:	21%
Price:	£9.95 (cass) £12.95 (disk)

COLOSSUS CHESS X

CDS SOFTWARE

Over the (many) years that I've been playing around with Commodore computers, one type of game that has retained a high degree of popularity is Chess. Not surprising really when you consider the vast number of chess players in the World!

The first of these to really catch my attention was Colossus Chess IV, on the good old 64, a superb piece of programming that beat all the competition. More recently, with the advent of affordable 16 bit computers, programmers have once again turned their attention on this noble game and brought us delights such as the much acclaimed "Battlechess". It was only a matter of time before Coloussus Chess made its appearance on the Amiga.

The program loads and displays the, now familiar, 3D board with a "standard" set of Staunton playing pieces. Program protection takes the form of a prompt line which requires the input of a single character from the manual, before allowing you to proceed with the game. Upon successful entry of the correct character the prompt changes to "Your move?", and you may now access the multitude of options.

Essentially, there are two screens in Colossus X, the Play Screen and the Information Screen. The Information Screen provides details on players names, moves, timings and the program's thought processes. The Playing Screen is the board representation, which can be switched between two or three dimensions. The three dimensional board may be rotated and tilted for the best angle of viewing.

The "Features" menu includes options titled, among others, "Blindfold", where either or both sets are made invisible, "Language", you can choose from five different languages, "Games", for loading and saving the state of play and "Printer", which prints either the board as it stands or a list of moves. Other options allow you to change the playing pieces from the standard set to "Futuristic" (robots and ray guns), "Medieval" (knights in shining armour) or "Oriental" (shoguns and geishas), or what type of Sound you require. For those of you who like to have a little relaxing music whilst you play, Colossus X includes a selection of four classical pieces and, whilst they will never replace the London Philharmonic, they are not too bad either.

Included in this menu is an option called "Book", which holds the key to the amazing power of this program and is what makes it totally unique among its kind.

The Author, M. P. Bryant, has included routines that allow the program to "think" along "lines of moves", in much the same way as you would follow a family tree down from the top. For each move it makes, the game will follow each of the lines that it "knows" and will select a move according to the level of difficulty that you have chosen. What makes this particular program unique is that it will also "learn" moves as it plays. Should a move be made that, a) it doesn't have recorded in the "Book" and, b) it considers it a superior move, then it will be added and a new line established. For real experts, the Book can be fully edited but the manual goes to some lengths to dissuade the casual browser from experimenting, as this can cause its total destruction!

Colossus X contains options to change just about every aspect of the game and the way it is played. A default file can be edited that will define the intial startup parameters, such as two or three dimensions, sound settings and board and piece selections.

Actually playing the game couldn't be simpler, with input taken from both the keyboard or the mouse. Moves are made by positioning the cursor over the required piece and pressing the select button/key, the cursor changes to a clasping hand that "grabs" the piece, which can then be moved to the desired destination and "released" again. Alternative, standard a1, b2-type grid references are perfectly acceptable from the keyboard and, for the setting up of published chess problems, a necessity. The program will only allow legal moves, so cheating is impossible!

Colossus Chess X will give you one hell of a good game! With its ability to be set at whatever level you choose, don't be put off by its apparent complexity, it really is very simple to play. You will no doubt soon start to learn some of the more intricate moves and strategies of the game as your skill increases and you raise the level at which the game plays. If, as an expert player, you throw a few curves which the programmer was unaware, the next time you try it Colossus will have "learnt" the move and be ready with its own reply!

Colossus Chess X is an excellent example of this type of game, possibly the best to date. The only addition that might conceivably enhance this otherwise superb product, would be the ability to play an opponent via a modem or other such com-link.

N.S.

Rating: *90%*

Price: *£24.99*

HORGAN'S HINTS

As the sun silently defects to the Southern Hemisphere once again, the skeletal leaves accumulate in the gutters, and the high street stores slash the prices of their racks of unsold, tasteless beach shorts and acid T-shirts, watching Eastenders after dark reminds us of the steadily approaching winter. Not to worry though, your Uncle Horgan will keep the pantry well stocked with warm even hot pokes and tips. This month's consignment should please just about everyone, with 64, C16, Plus 4 and Amiga tips. By the way, all you readers from down-under, looking forward to a long hot summer, you can wipe those smug grins off your faces right now! Hurricane Tony is on the way!

64

Skate or Die

Not getting enough air into those ollies? Try this tip from Richard Weber on the downhill event, and grant your skater the ability to fly! Here's what to do:

1. Select regular foot.
2. Gain speed and then do a jump.
3. Once the skater is at full height, pull back on the joystick in the other port and hold it there.
4. Keeping the second stick pulled back, return to the normal joystick and push it forwards and hold down fire simultaneously.

Hawkeye

Start the game and lose all your lives, then press DEL which takes you to the next level. That one from A Knight.

Dominator

Reset the game before entering the following pokes from Casey Gallacher.

POKE 2293,165 for infinite lives
or
POKE 3546,206
POKE 8443,44
POKE 8518,44
POKE 18579,44 to shrink the ship on the first stage
SYS 2113 to restart

Reset again and re-enter the SYS call or the game will crash.

Licence to Kill

Infinite lives, a slower game, or a hidden message; take your pick after reseting the game.

POKE 8448,173
POKE 11565,173
POKE 15185,173
POKE 14730,173
POKE 33056,173
POKE 63142,173 for infinite lives
or
POKE 36638,173
POKE 36644,173
POKE 36655,173
POKE 36688,173 to slow things down
SYS 5346 to restart
or
SYS 32768 for a little message

Phobia

Matthew Alder found the first poke I published didn't work with his game, so he's supplied this alternative for anyone in the same boat. Reset the game before entering:

POKE 5235,189
SYS 2172 to restart with infinite lives

AMIGA

Rocket Ranger

This listing from Tommy Olsen adds a 'top-up' feature to keep you stocked with lunarium at all times. First of all, switch the computer off and on again to clear the memory. Now load Amiga Basic and enter the following listing.

```
REM *** R.R.CHEAT BY
TOMMY OLSEN,9090
BURFJORD,NORWAY ***
CHECK=0:START=520192&
READ CHEAT$:CODE=VAL
("&H"+CHEAT$):
CHECK=CHECK+CODE
POKE CHEAT,CODE:NEXT
CHEAT
IF CHECK<>14968 THEN
PRINT 'BAD DATA?":END
PRINT "RESET YOUR
COMPUTER AND LOAD
ROCKET RANGER."
CALL START
DATA 2C,79,00,00,00,04,42,AE,00,2A,42,
AE,00,32,2D,7C
DATA 00,07,F8,00,00,2E,42,41,41,EE,00,
22,30,3C,00,16
DATA D2,58,51,C8,FF,FC,46,41,3D,41,
00,52,41,FA,00,16
DATA 43,F9,00,07,F8,00,30,3C,00,6A,12,
D8,51,C8,FF,FC
DATA 60,00,FF,FE,48,E7,00,82,2C,79,00,
00,00,04,41,FA
DATA 00,0C,2D,48,FE,3A,4C,DF,41,00,
4E,75,0C,39,00,37
DATA 00,BF,EC,01,67,00,00,08,4E,F9,00,
FC,06,DC,2F,08
DATA 41,F9,00,01,00,00,0C,90,4D,69,73,
46,67,00,00,12
DATA 46,79,00,DF,F1,80,D1,FC,00,00,00,
04,60,00,FF,E8
DATA D1,FC,00,00,00,10,06,50,00,64,0C,
39,00,37,00,BF
DATA EC,01,67,00,FF,F6,20,5F,4E,F9,00,
FC,06,DC
```

When you need more lunarium, hold ALT until the screen flashes. Select resume and you'll have 100 more units of lunarium at your disposal. Don't try this in the fuel depot.

C16 and Plus 4 gamers can look forward to another batch of cheats in the next issue, including a clever routine for revealing vocabularies from adventure games. Of course there'll be more stuff for the 64 and Amiga as well, but until then, why not get some of your own cheats to me at this address:

Uncle Horgan
Hallowed Horgan's Hints
CCI
40 Bowling Green Lane
LONDON
EC1R ONE

The Story So Far: Volume 4

ELITE

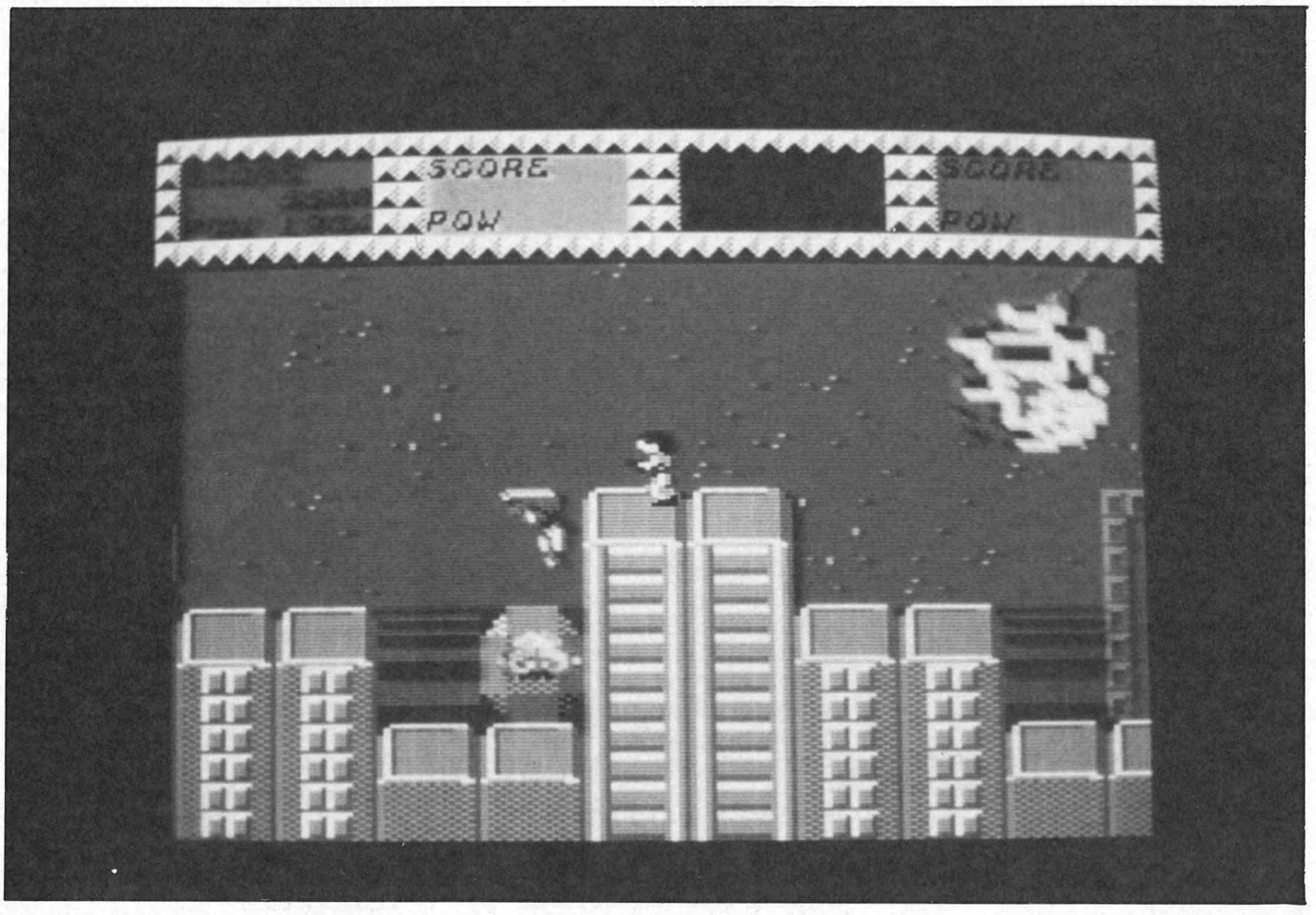
Six hits from Activision's back catalogue join forces in the fourth volume of Elite's The Story So Far compilation.

Ghostbusters, despite selling for a pound over the going rate of 64 cassette games at the time of its release, is still one of the most successful games of all time. Including digitised speech and, for its day, excellent music, word of its quality soon got around and everyone wanted a copy. The game itself puts you in control of the ghostbusting team, on full alert during an outbreak of 'Slimers'. As the day goes on, the city's 'PK' rating increases until a marshmallow man provides the final confrontation. A simple, but fun game, and although the graphics are extremely basic, I still quite like Ghostbusters.

The Eidolon is a typically pioneering adventure game from Lucasfilm. To be precise, The Eidolon is more an expedition than an adventure. Whilst snooping around in an old mansion, you come across a wierd Victorian contraption. The diary nearby tells of a fantastic new world to which the machine can travel, so

"Superb 3D fractal graphics and equally impressive monsters create a gripping atmosphere."

hopping into the driving seat, you pull the first lever that comes to hand. You find yourself transported to a subterranean world of



tunnels and chambers, inhabited by all manner of strange creatures. Your goal is to find a way out of this place, but the goblins and dragons have other ideas. Superb 3D fractal graphics and equally impressive monsters create a gripping atmosphere. Classic stuff.

Back To The Future held little potential for a computer game tie-in. Consequently, Activision's conversion took the form of an unexciting arcade adventure. For the two people and their dog who never saw the film, the plot goes something like this. Marty McFly travels back in time to 1955, where he meets his future parents. To secure his true destiny, Marty has to get his mum and dad together, a task complicated by the fact that his mum has fallen in love with *him!* The game involves much object manipulation across various screens, frequented by characters resembling zombies wearing lead boots. Nothing really to grab your attention, and little addiction is formed as a result.

In Wonderboy, Tarzan meets the Mario Bros. in a highly playable platform game. Through the scrolling jungle, off the edge of the cliffs and across tropical islands, Wonderboy defends himself with a limitless stock of battle axes. The coin-op's technology was well matched to the 64, so the conversion is accurate in all repects, including graphics. Not one to go down in history, but a very enjoyable game all the same.

"The choice to play one of four characters has been included in the 64 game, though now only two can play simultaneously."

Quartet was one of the coin-ops to cash in on the success of Gauntlet's four player feature. The sci-fi platform scenario failed to appeal to the enormous extent of Gauntlet's D & D, and the machine was usually to be found deserted in most arcades. The choice to play one of four characters has been included in the 64 game, though now only two can play simultaneously. Odd for a game called 'Quartet'. It all looks and feels a bit rushed. Gameplay is a little empty, but it should satisfy fans of the coin-op.

In a loose sense, Aliens is a role-playing interpretation of the film. You play the parts of six members of a team, sent to regain control of a space colony taken over by aliens. Switching from one team member to another, you search the corridors for the evil aliens, blasting them before the get a go at you. All very mundane really, with no decent graphics or sound to compensate.

The Eidolon still ranks highly, as do Ghostbusters and Wonderboy in a nostalgic kind of way. As for the rest, you can take them or leave them. My advice is to pick up the better games in their re-released budget forms.

T.H.

Overall: *65%*
Price:
£12.99 (cass)
£14.99 (disk)

JACK NICKLAUS' GREATEST 18 HOLES OF MAJOR CHAMPIONSHIP GOLF

Accolade

Golf games are few and far between on the Amiga, with only EA's unremarkable World Tour Golf and US Gold/Access' impressive World Class Leaderboard making any real mark. EA's simulation is full of brilliant presentation touches but lacks realism and addictiveness; US Gold's offering is a superb game but misses out on the frilly bits. Taking the same 3D first person perspective viewpoint as both of these, Jack Nicklaus' Golf offers the depth of the former and the excellent gameplay of the latter.

Once you've chosen one of three courses (each with their own distinctive style), you select which type of game you want to play. Here the choice is between standard Stroke Play (an 18-hole course where the player with the lowest score wins) or the more unusual Skins, where each hole is a unique match, and you can bet some cash along the way.

Up to three other players can play a round with you (any combination of human or computer), and for each of these you can select one of three tee distances (Pro, Men's and Ladies'). There are nine potential computer opponents, ranging in skill level from the great man himself (who always does what he sets out to do and so is near impossible to beat) to the pretty dreadful Curly O, a beginner whose strokes and putts no lover of the sportwould wish to emulate.

Once you've sorted out the game's parameters, it's on to the action. You can play a round (which speaks for itself), practice any of the holes of the course you've chosen, loosen up on the driving range, hone your stroke on the putting green, or quit either to the course selection screen or to a computer reset.

If you're impressed by all this, the quality of the gameplay will impress you even more. Before each hole, Jack appears and gives some advice on the task ahead of you, followed by an overhead view of the fairway and green, including water obstacles and bunkers. At any time during play, you can simply press 'O' and this overhead map option returns.

Most of the screen is taken up by the 3D viewpoint: this shows immediate obstacles, and hints at others. The range of clubs you're given is wide enough to allow just about any shot you'd want to play. Used in combination with an aiming cursor and the shot meter on the left, you can theoretically hit the ball any distance up to a maximum of almost 300 yards. The meter is similar to that used

in Leaderboard: press fire and a bar shoots up to determine the strength; press fire again and the strength is set. The bar returns down the meter, and pressing fire for a final time determines the amount of hook or slice. All very simple, but quite difficult to master.

On top of this, you've got to take the wind direction and strength into account - on some holes a strong breeze can knock the ball into a clump of trees if you're not careful. A similar situation arises when you finally reach the green: you've got to watch out for how the land slopes, and by how much. Get a hole in one or simply play a birdie putt and you'll get a satisfying round of applause from the spectators.

Wherever the ball lands, the screen draws the view to the hole from that point. This is the only problem with the game, and it's a reasonably major one - you can wait up to 25 seconds for the perspective to be drawn. That might not sound much, but if you consider that you'll play, on average, at least 72 strokes for the round, it adds up to a long waiting time. And that's even before you take other players into account.

The great things about Jack Nicklaus' Golf are its realism, attention to detail and flexibility. The ball movement is pretty impressive and, coupled with the great sound effects, creates a strong impression of 'being there'. The details include a whole series of constantly updated statistics once you've completed a hole: how many times you hit the green, the longest drive you made, the closest to the hole you've got so far. Finally, there's the flexibility: the difficulty levels, the choice of opponents, the ability to alter your viewpoint if you don't like the one you're given immediately, the variability of the wind; it all makes for addictive gameplay that will keep you playing for a long time.

The problems are presentational: the loading system isn't the greatest in the world, the computer opponent is a little too fast to help you learn, and the perspective drawing, as said, is too slow. If you can put up with these irritations, you've got a great golf game that's nicely packaged and very compelling.

K.H.

Graphics:	*80%*
Sound:	*80%*
Playability:	*90%*
Value:	*80%*
Price:	*£24.95*

Bargain Bucket

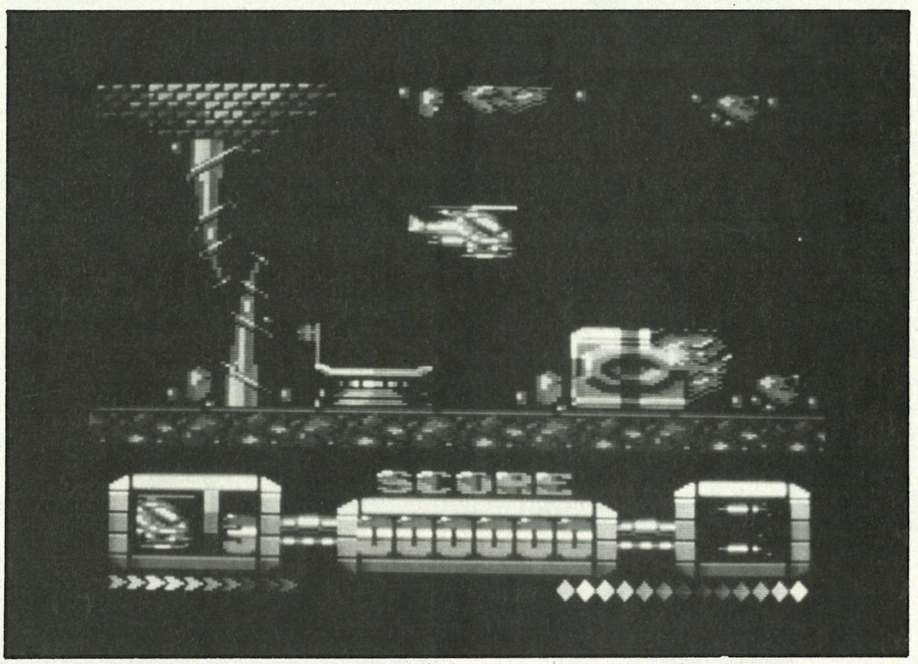
Taking a lucky dip into his overflowing bowl, T. Horgan esq., comes up with a batch of budget games that are not beyond the pail!

Moving Target (Players) £2.99

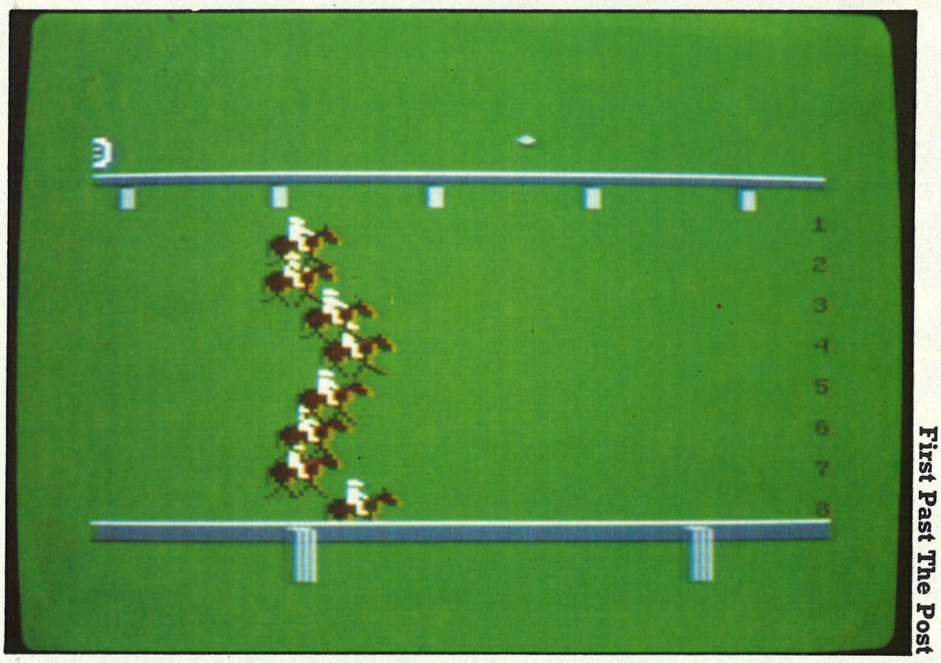
Storyline: Blah blah cocaine refinery, blah blah prime four bombs, blah blah kill everybody. Another original, deep running plot behind another game of similar qualities. Having never visited a coke refinery I could be wrong, but it seems to me that the pigs and tropical flora are a touch misplaced. These are to be seen in most of the small flip-screens, as are the guards who run about threatening to shoot you. Strangely enough, they never do, they just drain your energy if you touch them. No sound effects here, just a forgettable soundtrack. A cheap game at a cheap price.
Overall: 55%

Cobra Force (Players) £2.99

Plans are afoot to devastate the enemy's territory. You will fly over the appropriate areas and take out the SAM launchers, clearing the way for a Stealth Bomber to reduce the scene to rubble. The hardware supplied for your mission is a heavily armed chopper. Limited stocks of four weapons are at your disposal, though only three of these are capable of destroying the installations. The idea is that a quick tap of the fire button releases a cannon shot, and a longer press activates the selected super-weapon. In fact, it's almost impossible to fire the cannons without letting rip with a valuable missile or bomb. That, together with the slow control response makes for a frustrating game, which can't be said to be addictive to any great degree.
Overall: 45%



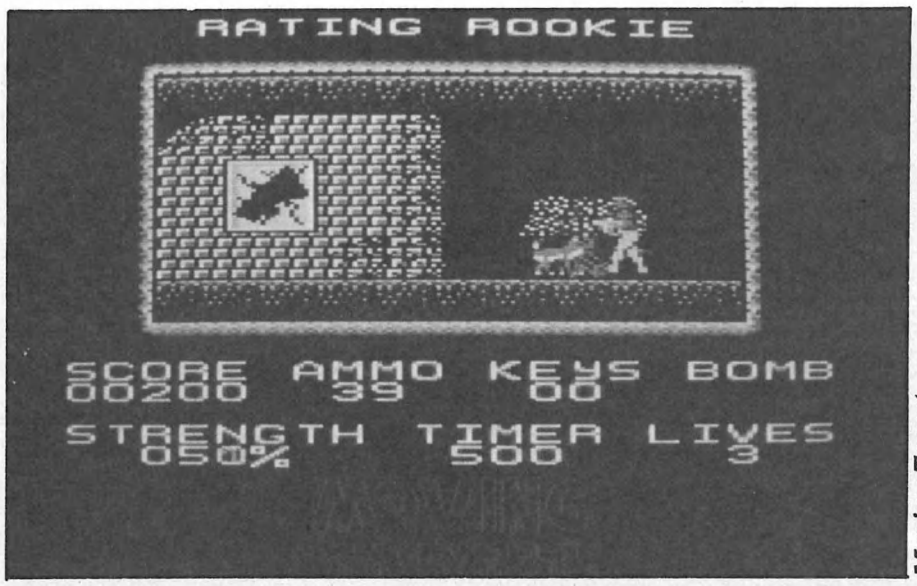
Cobra Force



First Past The Post

Rambo (Hit Squad) £2.99

Commando's arch rival during Christmas '85 had to sit and watch Elite's coin-op conversion shoot to the number one spot. Stood next to Commando, Rambo looks very similar at first, though a quick game reveals Rambo's more varied gameplay. The fun starts once you get inside the POW camp, and start blowing the



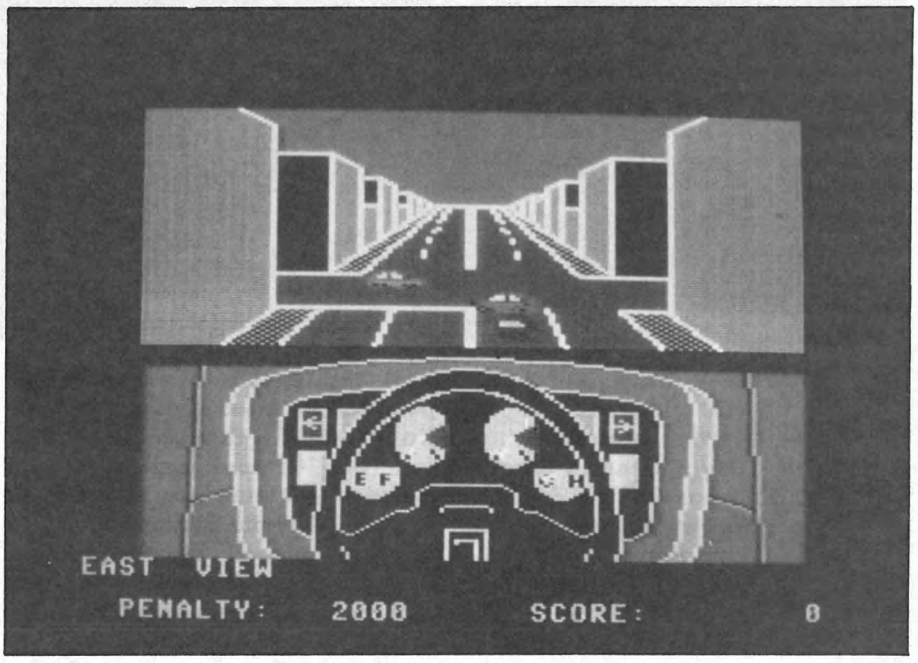
Moving Target

bore you rigid. You get to buy and sell horses, enter them for races and bet on them. The idea is to make as much money as possible and win the trainers' league. The front-end presentation looks like a hackers demo, but no such feats of technical wizardry are to be seen during the races, which drag on way too long. Not my cup of tea, but horse fans may bet their cash differently.
Overall: 50%

Turbo Esprit (Encore) £1.99

Originally released through Durrell, Turbo Esprit is a kind of cops 'n' robbers game with a Miami

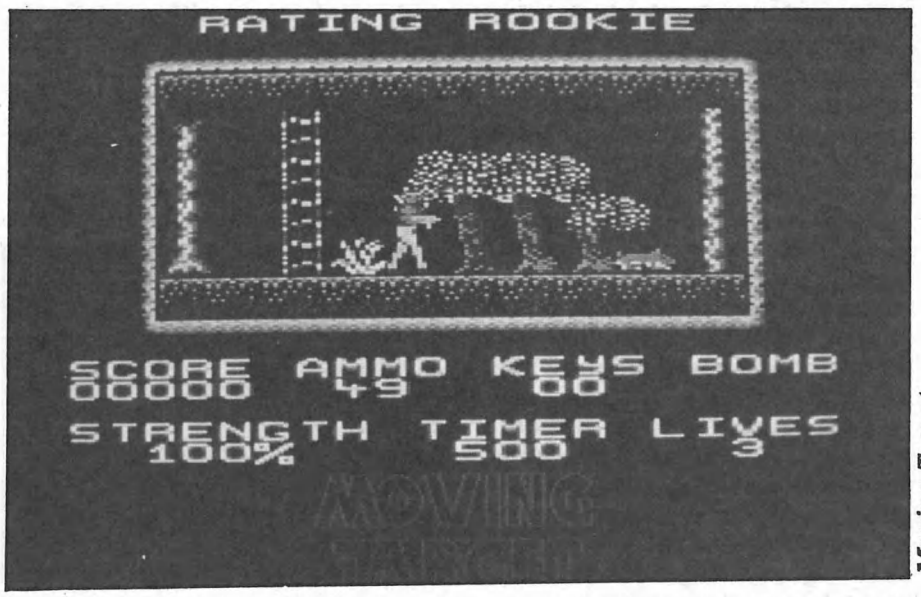
huts to pieces with your arsenal of bazookas and rocket launchers. Martin Galway supplied the meaty sound effects which compensate for the pint-sized (but neatly defined) Rambo sprite. The helicopter shoot 'em up section adds to the variety to make a satisfying bit of pure violence.
Overall: 85%



Turbo Esprit

First Past The Post (Kult) £2.99

If you enjoy a day at the races or a regular flutter on the 3.30 at Sandown, this could be just the ticket. If, like me, you would find a lifetime trapped inside a ping pong ball more interesting than five minutes watching horse racing, First Past The Post could



Moving Target

Vice-like scenario. In fact there are no robbers, instead drug dealers fill the baddie positions. The Lotus of the title is your transport as you speed around town chasing the bad boys. Details such as traffic lights, pedestrians, two-way traffic flows and variable size streets combine to overshadow the rather slow moving graphics. It's all too easy to take a wrong turn down a narrow dead-end alley in your haste, and these realistic features make it surprisingly good fun to play, despite its miniscule graphics and insignificant sound.
Overall: 75%

T.H.

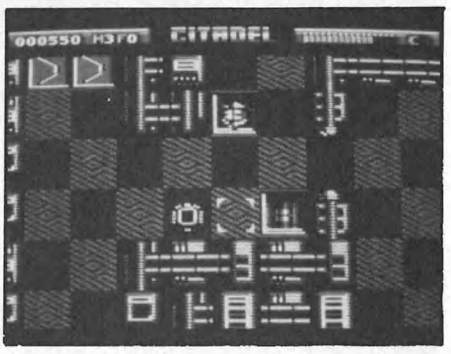
Martin Walker has built up something of a reputation for programming top quality, original and thought provoking games for the 64. His previous successes include the unusual Chameleon (also released by Electric Dreams) and the shoot 'em up Hunter's Moon. Both these games have elements

"It's a shoot 'em up but you need brains as well as brawn to win."

of strategy and demand more than just quick-fire trigger action from the player. Citadel is no exception

It's a shoot 'em up but you need brains as well as brawn to win. The action takes place on a small planet situated near the outworld colonies near Atenapool. Until recently, the authorities had assumed that it was lifeless, but a probe on a routine mission reported details of a deserted underground city complex deep beneath the planet's surface. Clearly, somewhere in the labyrinth, the secrets which made all this subterranean technology possible must be hidden.

Unfortunately, though the inhabitants of Citadel are dead, its defence systems are still in operation. Anyone brave enough to venture into its corridors must encounter armoured droids, traps and gun emplacements. The authorities have appointed you to navigate the secrets of the planet's eight different cities and recover the technological information hidden there. You are equipped with a limited supply of remote control hoverdrones known as Monitors. The first is placed at the entrance to the first city and it's up to you to direct its course through the rest of the planet. Each city consists of two stories of interlinked corridors connected by a series of lift shafts. Monitor's approach sets off traps and enemy probes which are initially hidden behind sliding doorways. They include vicious stepperguns, dome guns, diaguns, assassins and aggressors. Some only fire bullets, others follow the hoverdrone, shooting anything from bullets to homing missiles and attempting to destroy you. Traps and probes only attack when they sense an enemy moving or firing. To consider your strategy, all you need to do is sit tight and stop blasting. Some corridors are blocked by force fields or power beams. Usually, they can be deactivated by locating a nearby switch. In addition to defence systems, Citadel is equipped with energy pods and ammunition stations. Extra firepower includes rapid fire, 2-way fire, 3-way fire and burst fire. To access bonus stations, simply position Monitor over them and press the fire button twice. This enables the capture pod which can also be



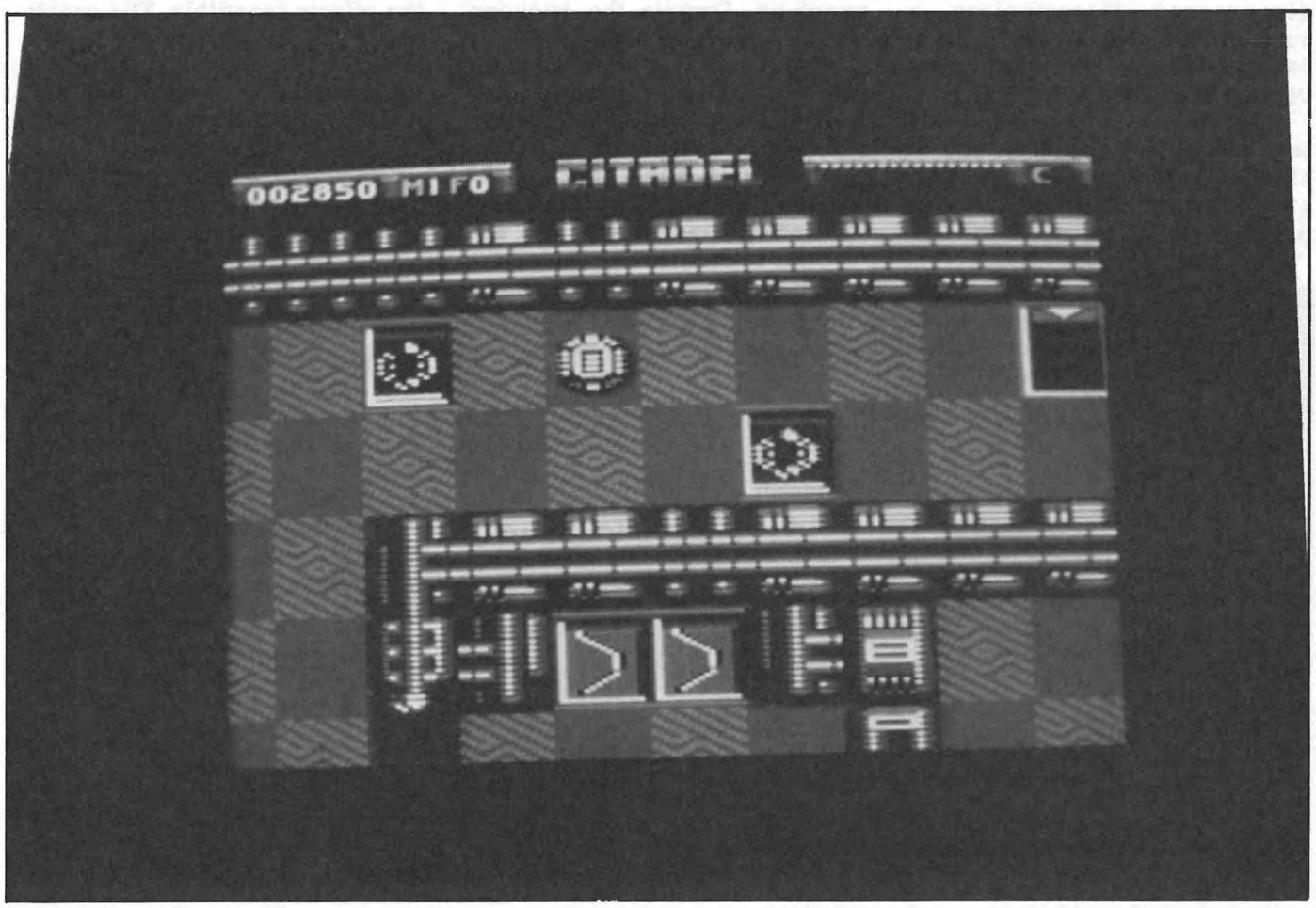
used to take control of defence statics and mobiles adjacent to Monitor. This stops them firing at the player and enables mobile droids to be used as shields and battering rams. Positioning a droid in one particular place may block up passages and provide protection from further droids emerging from a trap. Pressing the Space Bar locks a droid in its current position in relation to Monitor. That means one side of the hoverdrone is always shielded from fire. Like extra ammunition, captured droids have a limited life-span so it pays not to rely on them too much. An energy dial gives information on the energy level of the defence unit currently captured as well as the power of the Monitor presently in use. Another advantage of using the capture probe is that it can pick up any object on the screen, even if it is located on the other side of an inaccessible wall. This means that extra power and ammunition can be picked up even when the supply pods are in areas on screen which Monitor can't reach. As you travel through the cities the defence systems get progressively more aggressive. Missiles become more intelligent, force beams become more complex and on the final level deserted corridors are beset with hidden pitfalls. Each of the eight cities is given a name whichis very effectively reinforced by the graphics and the sound. The corridors of the city Armour, for example, consist of armoured plates. Probes and defence systems make eerily appropriate

" As a blend of strategy and action, Citadel hits practically the perfect combination."

noises which manage to create a very tense and thrilling atmosphere. In fact, the sound effects, which have to be heard to be believed, are among the most impressive ever produced on a 64. The warlike title tune complements them perfectly. The action itself leaves very little to be desired. The shoot 'em up elements combine perfectly with the strategy to create an astonishingly complex and demanding challenge. There's plenty here to keep the most avid gamesplayer occupied for hours at a time and for added variety there's even a random trap layout option
Effectively this means that the game can be different every time you play it. There's no need to get bored of the cities you've already completed because they need never be the same. As a blend of strategy and action, Citadel hits practically the perfect combination. It's excellently presented and the graphics and sound reflect the kind of minute attention to detail gamesplayers are always hoping for but very rarely get. 64 owners are in for a treat.

K.H.

Graphics:	84%
Sound:	90%
Playability:	92%
Overall:	89%
Price:	£9.99 cass £14.99 disk



Vigilante

US Gold

It was the loud, OTT sound effects that first attracted me to Vigilante in the arcades. With gameplay so easy to pick up, it became many arcade-goers flavour of the minute. Unfortunately, it never made it to flavour of the month, because its gameplay was so familiar that the addiction never gripped and soon

"The various enemies introduce a little variety, but as far as fighting goes, the same tactics apply for all the "pawns".

disappeared. Nevertheless, a coin-op is a coin-op, and everyone knows how the public love a coin-op conversion.

I didn't realise there were any left, but apparently a bunch of skinheads have kidnapped Madonna. Obviously the scenario was dreamed up by the same kind of minds that insist on portraying any 16-19 man as a thick skinhead, be he a character in washing powder advert, or the son of a well-to-do sit-com family living in Surbiton (or Hounslow!). We'll let that one go this time, as the plot of an arcade game is far from a vital link in the chain.

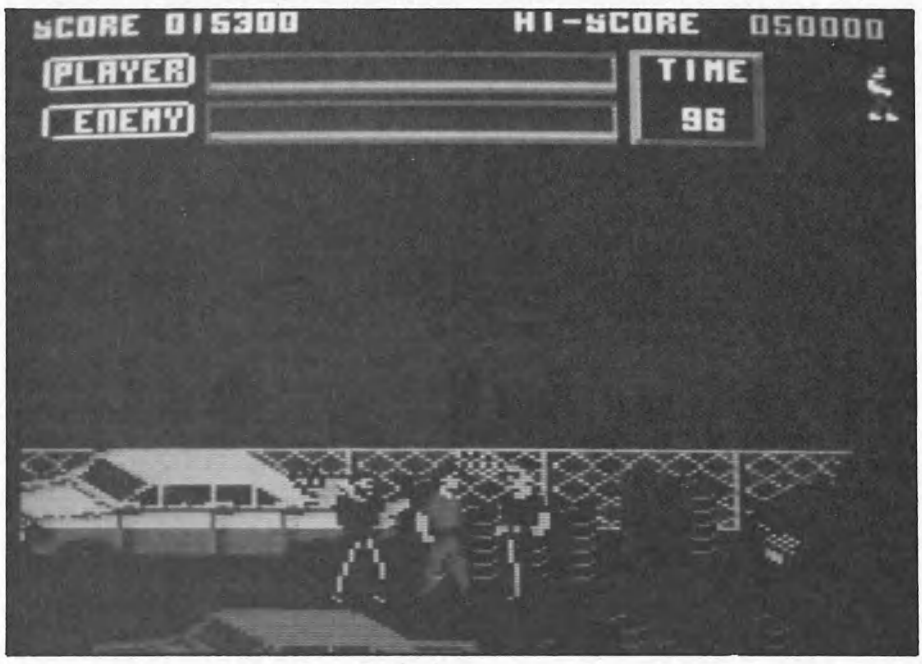
Anyway, the game itself opens with the background story, lazily displayed in low-res, despite a glitch between it and the status area. The graphic extravaganza continues as you press fire to begin. Our vigilante shuffles nervously along a high street backdrop and engages in his first punch-up. Despite the enemies' blocky definition, they do bear a resemblance to their arcade counterparts. The various enemies introduce a little variety, but as far as fighting goes, the same tactics apply for all the "pawns". You do have a number of attacking moves, but you will find yourself using the same one 90% of the time. The essential big bruiser awaiting you at the level's end is the only exception.

As if the game's repetitive combination of 'walk-kick' tactics were not tedious enough, your character worsens things by walking extremely slowly. As a result, Vigilante is another of those games in which you revert to jumping along rather than walking, just to relieve the boredom. International Karate demonstrated how well a game can sound, with superb effects and music. Vigilante's attempt at music is virtually tuneless, and the effects inaudible. The graphics do improve through the levels, but gameplay is kept strictly to the standard set in level one.

"There are no programming credits to be found, but then that's hardly surprising; who would want to put their name to this?"

There are no programming credits to be found, but then that's hardly surprising; who would want to put their name to this? How ever well it was programmed, it is unlikely that Vigilante would have had much lasting appeal, but it could certainly have been a lot better than this.

T.H.



Graphics: 44%
Sound: 20%
Playability: 30%
Overall: 30%
Price: £9.99 (cass) £12.99 (disk)

Ward, Stokes, Bracey and Patterson... No, it is not an old firm of Liverpool solicitors nor even a hot new advertising agency. It is the team that is making Ocean into the most formidable games software company around. The aim of Ocean seems not just to dominate the U.K. games field with such irresistibly smash hit licences like Robocop and Batman and to develop outstanding original product, but to go for the really big time. That means as U.S. games companies decline from major influences to little more than members of a pack scavenging for Nintendo scraps, for Ocean to achieve the lion's share of the world computer games market by the sheer strength of one top release after another.

So will it be "Today the U.K., tomorrow Ocean's world?" A CCI investigative team safaried North to beard the Ocean lions on their den. Here is their report...

ocean A

WORLD DO

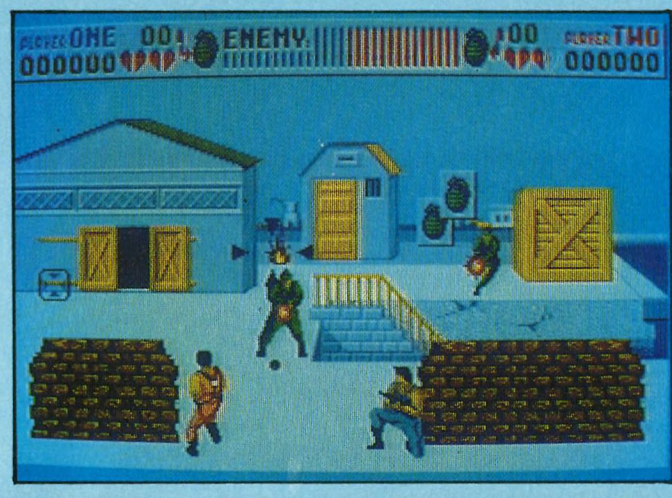
All the marketing expertise in the world is not enough to sustain consistent best-selling products, as Ocean know. Sure enough, the competition have some pretty big names backing their forthcoming releases, but when it comes to the quality of the games behind the names, none showns such promise as Ocean as we saw when we visited their Manchester base. Looking at the present unchallegeable as European and possibly, World Number One. Their autumn/winter line up looks something like this.

THE UNTOUCHABLES

From the gangster movie starring Eliot Ness, Bracey's boys have been inspired to create a multi-stage shoot 'em up. As is now the norm for multi-stagers, The Untouchables will allocate one load to each section. Thanks to this you get a variety of game styles all with a common shoot out theme. The first, for example, is set over a multi-directionally scrolling warehouse, which is followed some time later by a spot of ducking and diving with a shotgun, as you confront the criminals in a shady alley. Thanks to the programmers mastering the art of typing in their sleep, both the 64 and Amiga versions are very near to completion.

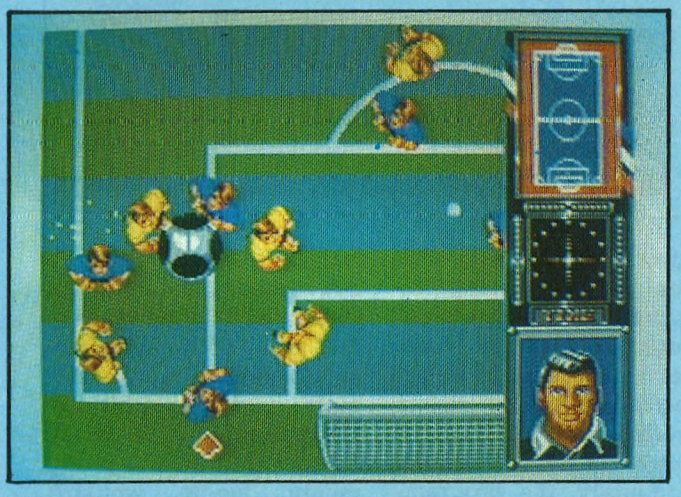
BATMAN

Trust - who do ya? If it's a classy film tie-in you want, you can count on Ocean. As with The Untouchables, a series of scenes have formed the basis for the four-stage game. From the scenes in the chemical factory and the belfry, two



MING FOR MINATION

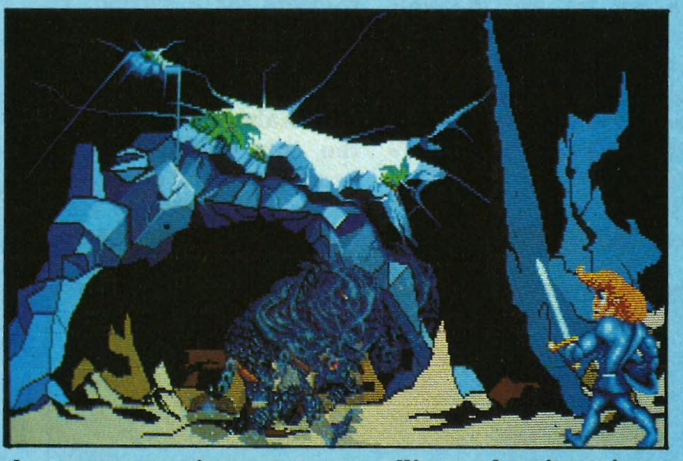
similar platform games have evolved. Batman's dependance on his grappling irons has lent these levels a flavour reminiscent of Bionic Commando, with a Batwing level takes a similar approach, but here your goal is to release the Joker's poison balloons. Amiga users can look forward to a couple of excellent 3D implementations of those last two sections.



pinch of US Gold's Indy action game. The remaining sections concern the Batmobile and the Batwing. The Batmobile stage is presented in a right to left scrolling format, involving much traffic dodging. The

LOST PATROL

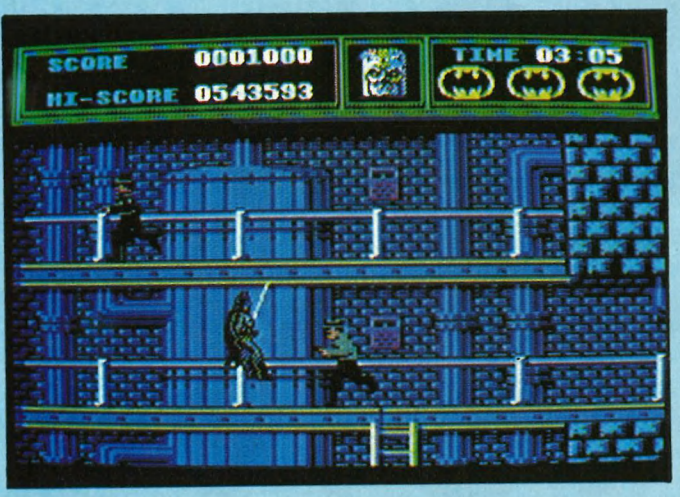
This is Ocean's first attempt at a new kind of game, and as with all their original titles, Lost Patrol is 16-bit only. Bracey freely describes



the game as an interpretation of the Vietnam war in the Cinemaware style. Going on what we've seen, it looks as if Ocean could beat Cinemaware at their own game! As for the gameplay, there's not much to go on at the moment, but it's definitely in the running for the year's best graphics.

IVANHOE

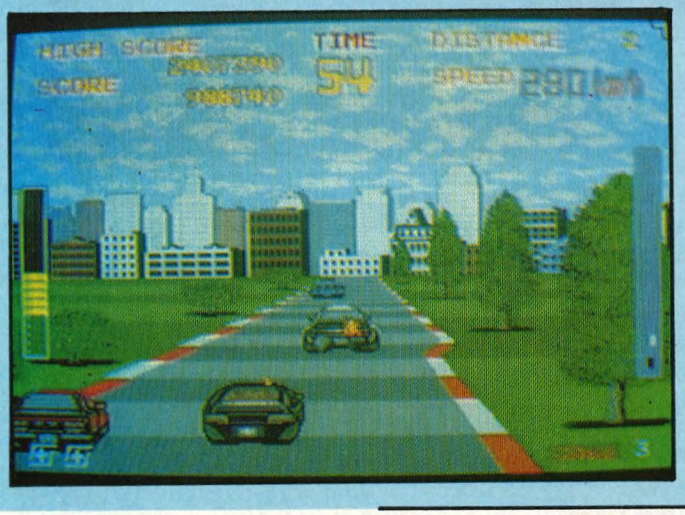
Another 16-bit only creation is Ivanhoe from Ocean France. This fantasy chop 'em up is being developed on the ST, but improved scrolling and sprite animation is promised for the Amiga game. As with all Ocean's games, the graphics have been desinged by an artist rather than an arty programmer, and it shows! The adventure has you tramping through the woodlands of England on your way to rescue the king from a dungeon somewhere on the continent. Your travels take you through all kinds of situations, including a scene played on horseback. Two others to keep an



eye out for are the volleyball simulation Adidas Beach Volley, and Adidas Golden Shoe, both also from Ocean France.

OPERATION THUNDERBOLT

If I may remove my tongue from the back of Ocean's trousers for a second, I'd like to say that the coin-op Operation Thunderbolt disappointed me. The gameplay is almost identical, and the only additions are a second gun and a some 3D sections. By coin-op standards, the 3D is poor, adding nothing to the game. It has gone down a lot better with many arcade-goers, which from Ocean's point of view is what counts. Good news for fans of the coin-op is that both 64 and Amiga versions are looking good, although there is obviously a fair bit to be done before they make it to the shelves.



CHASE HQ

With a deadline for a Christmas release rapidly approaching, the programmers are squeezing 25 hours from each day to get things finished on time. That leaves -1 hour to get pre-production demos together, so at present there's not much to go on. Incidentaly, the programmer of the 3D sections from the 16-bit Batman games, has just about completed the Spectrum Chase HQ, and it plays just like the coin-op! He had hoped to code the Amiga Chase HQ, but with Speccy HQ and Batman on his plate it wasn't to be. We are assured however, that a repeat performance of the terrible 64 WEC Le Mans is out of the question.

PLUS

A few others on the way include Ocean France's conversions of Cabal, an Operation Wolf derivative, Qix, the old favourite coin-op, and Retaliator, an extremely impressive 16-bit only flight simulator. All in all, I'd say that was a pretty meaty line-up, wouldn't you?

T.H.

Nancy Picard reports on the company which looks to be perfecting the formula for commercial software success.

Ocean is riding the crest of a wave of success – a mix of software, marketing, and magic, which has resulted in their number one status in the U.K. computer entertainment software field. Eclipsing US Gold approximately two years ago, the Manchester-based company has specialised with enormous success in licensing titles from arcade coin-ops and films.

From a company with a history of lack-lustre games only three years ago, (don't mention Miami Vice and Knight Rider, please), Ocean has become the brand name among gaming enthusiasts, with Software supremo Gary Bracey receiving much of the credit in industry circles for the remarkable transformation from schlock-merchant to smash hitters.

But Ocean's success is a result of taking calculated risks. Releasing strong titles at the same time proves the point; Operation Wolf and Robocop stayed at Number 2 and Number 1 respectively for several months last year, with Robocop occupying the top slot, according to Gallup, for an unbelievable 9 months. The company's other recent hits, New Zealand Story and Red Heat, have hung in the top ten for several weeks as well. And by Christmas this year, you will certainly see many more strong Ocean releases on your shelves.

We were invited to preview the line-up of releases for the next 6 months. MD David Ward invited us into the Ocean environment. He wanted us to ask questions, to look around, and most of all, to publicize. 'These are the next number ones,' he said, with a smile, and his manner conveyed that whether we would be writing about them - whether we chose to write about them now or later.

Among the crypt-like environment of the Ocean establishment (we even had maps), the Ocean programmers, artists and musicians showed us the autumn and Christmas games, many of which were in their last stages (see Tony Horgan's article for a detailed look at the titles being released). Whilst the graphics and game play impressed me, I was more interested in investigating the company's formula for success.

What does it take to be number one?

A DASH OF CONTROL

David Ward has earned a reputation as a shrewd marketeer who has learned from his mistakes. As a nightclub owner in the United States several years ago, he was amazed at the queues that formed in front of the video machines; it was the seed of an idea that became Ocean seven years ago. Shortly thereafter, Ocean pioneered the signing of licenses for the development of software.

Paul Patterson, the company's sales manager, proudly recounted the company's licensing 'firsts': Mister Wimpy was the first license, with Burger Time as the game release; The Hunchback was the first coin-op license; and the signing of Daley Thompson was the first character license. But licenses of famous names, now seemingly crucial to the success of a product in the 8 bit field, have not always been helpful to a poorly programmed game. After the company's failures with licensed titles in 1985/6 such as the bungling of Miami Vice, the decision was made to bring all development in house in order to retain tighter control over the final product.

Whilst the programming staff at Ocean numbers approximately 30, the company does use some freelance and outside developers. In addition, Ocean also has two teams, one in Liverpool and one in France, with 10-14 programmers at each site. According to Bracey, the mix of in-house and freelance/ commissioned development is exactly right. The products that they produce have the Ocean stamp of quality only possible with close control of the game's development. Recent releases are proof of the success of this structure:

THE RIGHT MEASURE

With successful releases in the 8 bit and 16 bit market, Bracey said the company's resources are divided equally between the two formats. For licenses, the company will usually release a game on all formats - i.e. Amstrad, PC, Amiga, C64, Atari ST, etc. For original releases, however, the company only develops and produces original titles and storylines in the 16 bit format.

'Most of our games are still available on 8 bit,' Ward explained. 'As long as there is an 8 bit market, we'll be there. Ocean is different from last year. All of our games are now available on 16 bit. We've had success in the 8 bit market, maybe because there are fewer players than before. Many companies have gone right into 16 bit development, flooding the market with games.'

Instead, Ward explained, Ocean follows a tried and true game plan, sacrificing producing 'games on the edge of

David Ward: "If you can't take risks, you shouldn't be in the market."

technology' that smaller software houses are able to achieve, for releases that are 'on schedule.' But although the game plan is set, it also takes into account a number of risks - such as developing original titles.

'We can justify development costs in the 16 bit market based on its niche factor just in the UK. With 8 bit games, even with the whole of Europe for distribution, the sales are not high enough to justify development costs,' he told us. Ward predicts, however, that the 16 bit field is where the next generation of game players will gather.

Subsequently, the Ocean boss remarked that in approximately two years Ocean will have invested a significantly higher percentage of its resources into the 16 bit field. Perhaps with a bit more confidence, Patterson echoes the MD's prophecy: 'This Christmas will be a 16 bit Christmas, and Ocean will be right up there, continuing our reputation as a very, very strong software house.'

Ocean has also been involved in games development for consoles, such as Nintendo and Sega, and coin-ops. CD ROMS and laserdisks are also on the company's agenda, but no releases or formal plans have been announced.

FORMULA FOR THE FUTURE

With a healthy margin of success over most other competitors, Ocean is in a unique position to influence the market, rather than merely reflecting consumer demand. We asked Ward about his perceptions of the company's role, and the future of the market in general.

'People will have more leisure time in the future' Ward remarked. 'Games are an entertainment form as far reaching as music or video. Interactive technology at home will now span out. How fast this occurs really depends on how closely hardware and software manufacturers work together to create entertainment on machines.'

'The next revolution of machines,' he continued, 'will not be able to hope that the software will be available to display it. They must work with the software houses to make sure that it makes full use of the machinery.'

Togetherness - like Ocean's programmers - is that the magic ingredient in the success formula?

'Commodore, among other hardware developers, have previously downplayed the games use of machines. Our industry in general is in the closet as far as how hardware is manufactured and marketed. Games have been regarded as errant or extra - not morally good in the use of knowledge or information tools; the message is that somehow, games denigrate the way information technology serves society,' Ward said.

'That is completely false,' he declared. 'Video and audio are quite legitimately used in professional places, but in the home, their principal use is entertainment. Computers are no different, and there is nothing wrong with producing entertainment on them.'

Ward's overall philosophy, and that which seems to guide the comapny, emerges in his perception of the computer industry's similarities with the film industry.

'As the cost of staying in the market goes up, I think we'll see a consolidation of artists and games publishers in a larger way, in a more supportive effort. The analogy between film making and computer entertainment, as I see it, is valid. After all, you have a collaboration of a script writer, musician, artist, director and producer.'

CULTURE FOR THE MASSES

'Entertainment allows people to experience creativity,' Ward continued. 'Information technology allows people to acceess that which has inspired people, such as a computer game, in a much more democratic way than a painting that perhaps only a few thousand will see. A computer game can have an audience of millions.

Excuse me, but is shoot'em up art for a 98 per cent male audience ...culture?

Ward was reflective. 'We are conscious of what we produce,' he replied, 'and with our present size, we do see the ability to be more esoteric in our programming. Fortunately, we are unlike the film industry in one important way - we have yet to become a risk aversion business.' He paused.

'If you can't take the risks, you shouldn't be in the market,' he said. 'There comes a time when you've got to be able to grasp the golden ring and to run with it.'

N.P.

'Using Microcomputers'

by Phyllis Yasuda & Vivian Frederick (Addison-Wesley Publishers Ltd. £24.95)

A telephone is a machine made up of electronic and mechnical parts. So is a microcomputer. Then why are so many people who think nothing of using the first item so afraid of using the second?

Is it because there is something frightening, to those who know nothing about them, in the very sound of the name 'computer' and, in particular, when prefixed by 'micro'? Or is it just the fear of learning a new technique which may entail thinking in, what many people believe to be, an entirely different way?

Yasuda and Frederick set out to prove that using computers can be fun, that they should not be feared and that they are useful and enjoyable tools. Although primarily written for students, "Using Microcomputers' is for anyone who wants to gain skill and confidence in the use of what is an invaluable aid to modern living and working.

As is usual in computer-instruction books, it starts with 'Getting To Know Your Micro', in which the authors describe the difference between hardware and software, between mainframe micro and mini computers, and how programs are input, stored and printed; these are all the nuts and bolts of the subject. There are also line drawings and informational 'windows' accompanying much of the text. In addition, summaries at the end of each chapter, along with key words and exercises to be undertaken, make sure the reader has fully understood the chapter before progressing to the next step.

The book progresses through word processing, file programs, spreadsheets, on to programming languages (although the most popular are explained, only BASIC is demonstrated) business graphics and application packages. And Part One concludes with how to choose which micro is best for you.

The authors emphasise that the cost of the computer is just the first step, after that comes printers, software, modems, although some companies have a 'bundling' strategy (for example the pioneer Commodore Coleco Adam 'bundle' in 1985) in which computer, monitor, disk drives, software, are all included in the price. And although the overall price of a 'bundle' may exceed that of a computer on its own, as the Coleco Adam did over the 64, it includes components that one would eventually have to buy anyway.

Part Two consists of 'Working with your IBM'. WordStar, Lotus 1-2-3, MS-DOS for the IBM PC, etc. are explained and worksheets which give valuable hands-on experience to the new user are included.

Yasuda & Frederick have a user-friendly way of writing which gets the points over in an easily understandable fashion.

One thing I hope is that manufacturers will take note of their remarks on instruction manuals. 'Atrocious' is the word frequently used to describe them, they say, because they seem to be written for engineers rather than lay users. How right they are!

They list, too, not only that for which the potential buyer should look in the manuals (clarity of instructions, glossary, index, etc.) but also in the amount of after-sales support given and the computer's capabilities, present and future. They also warn about *vapour* or *puff-ware*, which is hardware or software being developed but which are 'not yet available' when the computer is purchased, the prototypes of which are demonstrated at computer fairs with promises to deliver at a future date, but which sometimes never appear on the market. 'Don't believe it until you see it' should be the watchword in such cases.

'Using Microcomputers' does, as it claims, take the mystique out of what, to many, can be a worrying experience. Sitting in front of a screen for the first time, typing something in and seeing it appear on the screen in front of you can be exhilarating. It can also be intimidating. How does it get on to the screen? What if you press the wrong button and everything disappears?

For anyone who has doubts Yasuda and Frederick have provided a book full of good advice and wealth of essential information, all packaged in an easy-to-read style to help guide you through the microcomputer maze.

D.M.

'BIG BLUE'

by James Chposky & Ted Leonsis (Grafton Books £14.95)

IBM, as most people know, stand for International Business Machines Corporation, the multi-mega computer company. Because IBM posess a substantial slice of the PC market, most manufacturers of software make their programs compatible with IBM PC's. But is was not always thus.

In the mid 1970's, IBM had virtually no PC's in production; their main target was the business end of the market. The incentive to produce a small reasonably priced personal computer of their own occurred in 1975, when a small company called Micro-Instrumentation Telemetry Systems brought out a $400 kit that enabled hobbyists to put toegher a 'bare-bones' table top computer. Names 'Altair', it sold 1500 units in the first twelve months.

The following year another company appeared. They called themselves 'Apple', and were headed by a young go-getter names Steve Jobs. Their PC was also very primitive but, to everyone's astonishment, it took off like the proverbial rocket.

Although IBM, as a corporate structure, were not particularly worried, there were some in the company who felt that they should now diversify and get in on the act.

In 'Blue Magic', (Grafton Books £14.95), James Chposky & Ged Leontis tell the story of the people, the power and the politics of the birth of IBM's PC range. And, as a record of the in-fighting that went on before the Acorn was finally unveiled, it is as good as any thriller.

The company did not, as the authors stress, co-operate directly in the preparation of the book, but then IBM

never help 'outsiders' who want to write about them. They do, in fact, have a standard 'non-disclosure' agreement which has to be signed by any manufacturing company with which they are associated. They also refused to allow their executives to be interviewed and the only information they furnished was confined to documents that had previously been publicly released.

Nevertheless, by dint of speaking to senior members of the original team of 'Project Chess', as the PC concept was codenamed, Chposky & Leonsis have pieced together a fascinating account of the machinations that finally resulted in the Acorn seeing the light of day.

The man with the vision and the foresight at IBM was William C. (Bill) Lowe. He had been with IBM for 13 years and, in, '78, was overall laboratory director at the Bocva Raton, Florida, site. According to a business magazine he was a 'consummate manager'. He was also very determined and when he had an idea he pushed it through come what may. It was he who persuaded the Corporate Management Committee (CMC) that it was time IBM went into the personal computer scene.

The first series was called the 5001 and it was a flop. The only software that could be used on the machines was IBM written and the screen display was so small it could barely be seen. The 5001 was such an embarrassment it was quietly withdrawn from the market.

By 1980, although there were more PC's available none originated at IBM, and even for those that were on sale there was no general compatibility. Bill Lowe realised that, as with their mainframe and business computers, any PC that IBM produced had not only to have efficient software but, and this was an important consideration because of the extra business it would generate, the software should also be compatible with other PC's

The CMC granted Lowe funding for twelve planning engineers and 'Project Chess' got under way. They gave him a month to come up with prototype sketches.

As with all new ideas it wasn't plain sailing. During the gestation period there were design failures, behind the scenes power struggles, resignations by key employees, even an eve-of-launch disaster when, 8 hours before the PC was due to be demonstrated to retailers, it was found that the fan in the power supply could accumulate enough dust to form a 'bridge' to the metal edge of the machine and cause a short-circuit. (They corrected the fault by forming a 'task force' which flew out to Chicago and spent all night inserting non-conductive cardboard insulation between the printed circuit boards and the power supply covers in every machine.)

'Blue Magic' is not just a reporting job — it is a well-written, fascinating account of the birth of a product. If you think all that is needed is the idea, the manpower and the financial resources, read 'Blue Magic' and you will think again.

D.M.

'IN THE DRIFT'

by Michael Swanwick (Legend/Century £4.95)

The continuing pollution of the environment is one of the most important, if not *the* most important, subjects which concerns mankind today.

Michael Swanwick's 'In The Drift' is nothing if not topical, for it endeavours to show what could happen if we go on allowing man, unchecked, to contaminate our planet.

The scheme is Pennsylvania in the 21st century. There has been a meltdown at Three Mile Island a generation previously and, between Philadelphia in the south and Boston in the north, there is a contaminated area known as 'The Drift'. People still live there but many are mutants born to parents who were caught in the nuclear fallout. Drift inhabitants are forbidden, by the neighbouring states, to leave the area for fear they might infect the so-far uninfected. So they drift aimlessly, usually in groups, like wandering gypsies, wearing nucleopore masks which supposedly filter out radiation from the still-contaminated air.

Keith Piotrowicz in one of the luckier ones. His appearance is normal, he lives in Quaker City which, though partly destroyed by the orgy of riots and fires afte the meltdown, is still fairly inhabitable and he even has a job. He dumps toxic chemical waste into the Drift itself.

Quaker City is governed by the Mummers, a kind of pseudo-Rotarian organisation. It doesn't do to get on the wrong side of a Mummer for the can literally give you the kiss of death.

Keith's one ambition is to escape from the Drift and make a life for himself in the outside world. Unfortunately, while returning from a dumping trip, he knocks down a girl, whom he takes to his home so that she may recover. In doing so, he incurs the wrath of the Mummers; she turns out to be a reporter who is hot on the trail of a story which will discredit them. The girl and Keith flee from Quaker City and take refuge in the Drift itself with dire results.

'In The Drift' is strange in more ways than one for it begins as Keith's story then leaves him a third of the way through to concentrate on another Drifter.

Samantha looks normal but she is a vampire. She suffers from something known as short bowel syndrome, a very nasty disease which means she can only keep alove by drinking blood, usually animal, but human if nothing else is available. She has the ability to foretell the future, including her own death, and she can also see where the contamination lies in the Drift and which parts are clear an pure. Sam's story is the second part of the tale.

The final third is about Sam's daughter, Victoria, whose destiny is to become the leader of the Drifters and to deliver them from the clutches of Keith Piotrowicz who, lifestyle and fortunes having changed, now rules the area with an iron fist. Victoria, too, is a vampire and has all her mother's gifts and more which encourages another reporter, male this time, to fall very heavily under her spell.

Michael Swanwick has been a Nebula Award finalist several times and it is not surprising. His writing is strong and sharp. One can almost see the mutants, some two-headed, others with dog-faces, many with other terrible deformities, condemned to wander through the Drift until they succumb to the Boneseekers, a leukaemia-like contamination that ends their suffering.

But, well written as it is, and lathough I hate to say it, 'In The Drift' is a depressing book. There is very little in the way of humour in it, not much lightness to lift the spirit. I suppose Michael Swanwick meant it to be that way.

For it is a depressing thought that if we are not more careful in the way we look after our planet, maybe this is the way the world could finally go. ***D.M.***

Visions of the Aftermath

Mindscape

There appears to be a never-ending stream of simulators reaching the market recently. Flight-Simulators, Tank Simulators – even BMX Simulators. However, I must admit that this is the first time that I have ever heard of a Post-Holocaust Simulator! Mindscape's "Visions of the Aftermath – The Boomtown" (hereafter called VA), sets out actually to simulate life(?) after The bomb.

VA arrives with a User Guide and two survival manuals. The first, New World Vision, is a down-to-earth town full of useful advice for the discerning survivor. Chapters include advice on a balanced diet, irrigation, building and diplomacy – as well as a list of good books to read. More of which later. The second volume is the EZFISH Home Owners Manual. Besides detailing the EZFISH shelter, and all aspects relating to it, the manual refers to survival suits, the terrain vehicle, computer functions and a rather depressing account of what you can expect a post-holocaust world to be like.

However, with VA you are, in fact, in a position to know exactly what the post-holocaust world will be like because you able, at the beginning of the session, to create your own game world complete with Nuclear Winters and the Greenhouse Effect from a series of start-up menus. In addition to the environmental features you can choose your own landscape. Deserts, Jungles and the ultimately serious Aftermath landscapes are offered along with four others. The level of difficulty, the number of players (from one to 16) and the choice of scenario complete the set-up.

The scenarios are divided up into four specific tasks. The first two deal with basic survival while the next, where the last survivor wins, is only offered with multi-player games. The final scenario surrounds your wish (although heaven knows why) to become King of the Hoards, a race of nomadic, ruthless, paranoid semi-survivors who comprise the majority of the remaining population.

Your character begins inside a shelter. A small, central "window" onto the game world displays the interior with a list of the shelter's provisions on the left of it. To the right are the provisions you are personally carrying. They can range from water and meat to lumber and arrows. The top of the screen displays three bar graphs which represent your Exhaustion (endurance), Rad Level (radiation exposure) and Life Force.

One of the main features of the higher level scenarios is the introduction of books which form the vehicle for the learning of skills. When you give the command to read a book, the computer makes a random topic selection.

Emerging from your shelter changes the window display from the shelter's interior to an overhead view of the outside world.

Trading is only possible with the Hoards. This activity is fraught with danger because of the desperate situation they are in. Talks can easily break down and fighting can arise. A separate screen details your current popularity with the Hoard's eight tribes.

The more I played this game the more I began to enjoy it. These feelings are enhanced with the multi-player option. Building roads, lean-to huts, planting fields and water-mills fills you with a sense of optimism which is a welcome relief from the depressing introduction. You begin to really care about your character and the careful progress you have made. So this is definately a game to stick at. Once VA grabs you, you will find yourself coming back for "just one more go". Recommended.

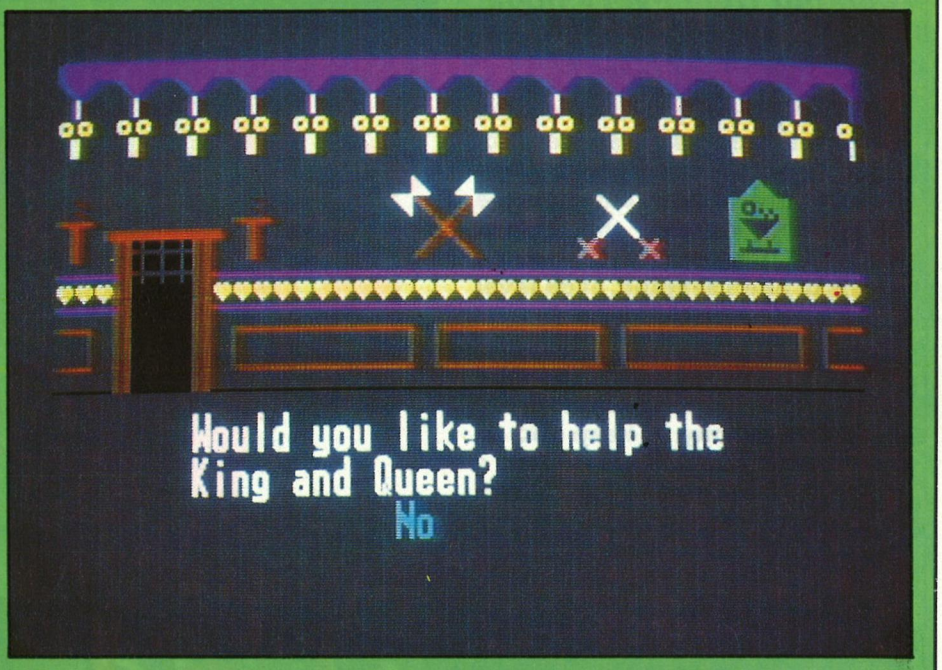
P.R.

Graphics:	*77%*
Sound:	*40%*
Playability:	*82%*
Overall:	*81%*
Price:	*£24.99*

GRANNY'S GARDEN

4MATION

When Mike Watson of 4Mation Educational Resources was deciding around which machine to structure his educational program "Granny's Garden" he chose the at-the-time obvious machine. The B.B.C. Micro. Having taken note of the positive feedback that the program received he decided to transfer the game onto the C64. The result is as expected, a near complete conversion of the original, full of bright colours, block graphics and large easy to see, text.



Granny's Garden is classed as an adventure game for lower and middle primary school children, designed to provide a gateway into another world. Set in the kingdom of the Mountains it is the player's task to rescue the king and Queen's children who have been kidnapped by the wicked witch.

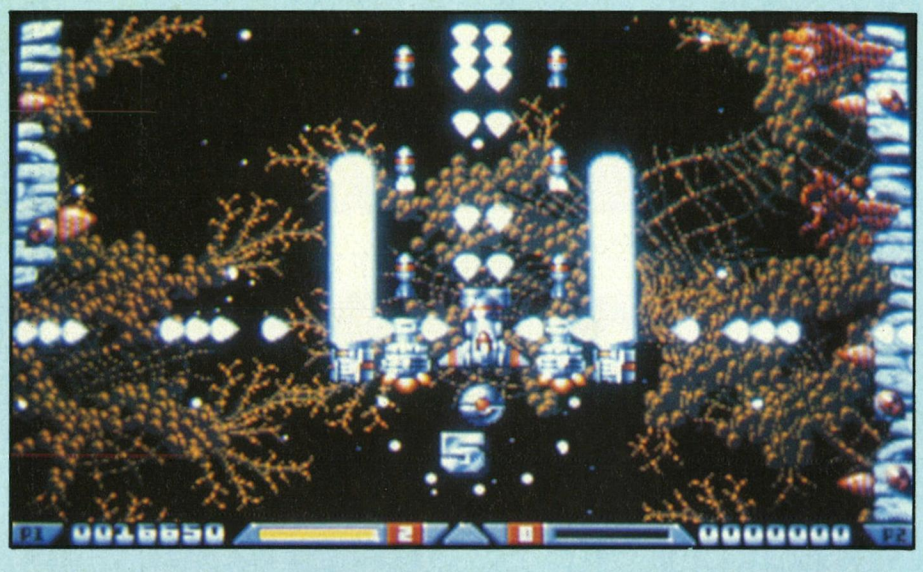
The usefulness of such a program is debatable. For example, the game will except incorrect spelling. Surely this is not a good thing in an age where too little attention is paid to accuracy. The choice to carry out a certain task, walk a certain way or even say a certain phrase all contribute to forming a childs individual personality. Granny's Garden does offer a CHOICE, but only as a token gesture. If a child using the program decides not to help the King and Queen, it is told that it MUST. After a few minutes of using the program, you will soon come to discover that a route through the various levels has been planned for you, and that you have very little say in what actually takes place.

Granny's Garden does not let the child make up its own mind. Each independent decision the child makes is knocked aside so that the story line can continue. If the player does not want to rescue the royal children, he must leave the program. Players might sooner return if they felt that something more stimulating was going to happen. The programmers under estimate the ability of children aged six to ten. They are capable of far more than this simple program offers them.

Granny's Garden was originally designed for use within the school environment. A selection of various follow-on activities are suggested within the packaging, including the writing of stories, design of mobiles and class discussions on various aspects of the program. By releasing Granny's Garden on the C64 4Mation are hoping to enter the home educational market. It is hoped that children will already have an understanding of Granny's Garden through classroom related activities. If this is the case, then perhaps it will be bought by their parents for them. If they are starting from scratch, it will probably be neccessary for parents to actively encourage the child to keep going, for the addictiveness of the game leaves something to be desired.

S.P.

Contact: Rickitt Educational Media, Ilton, Ilminster, Somerset. Tel: (0460) 57152.
Price: £17.75 for Disk and Cassette



Xenon II

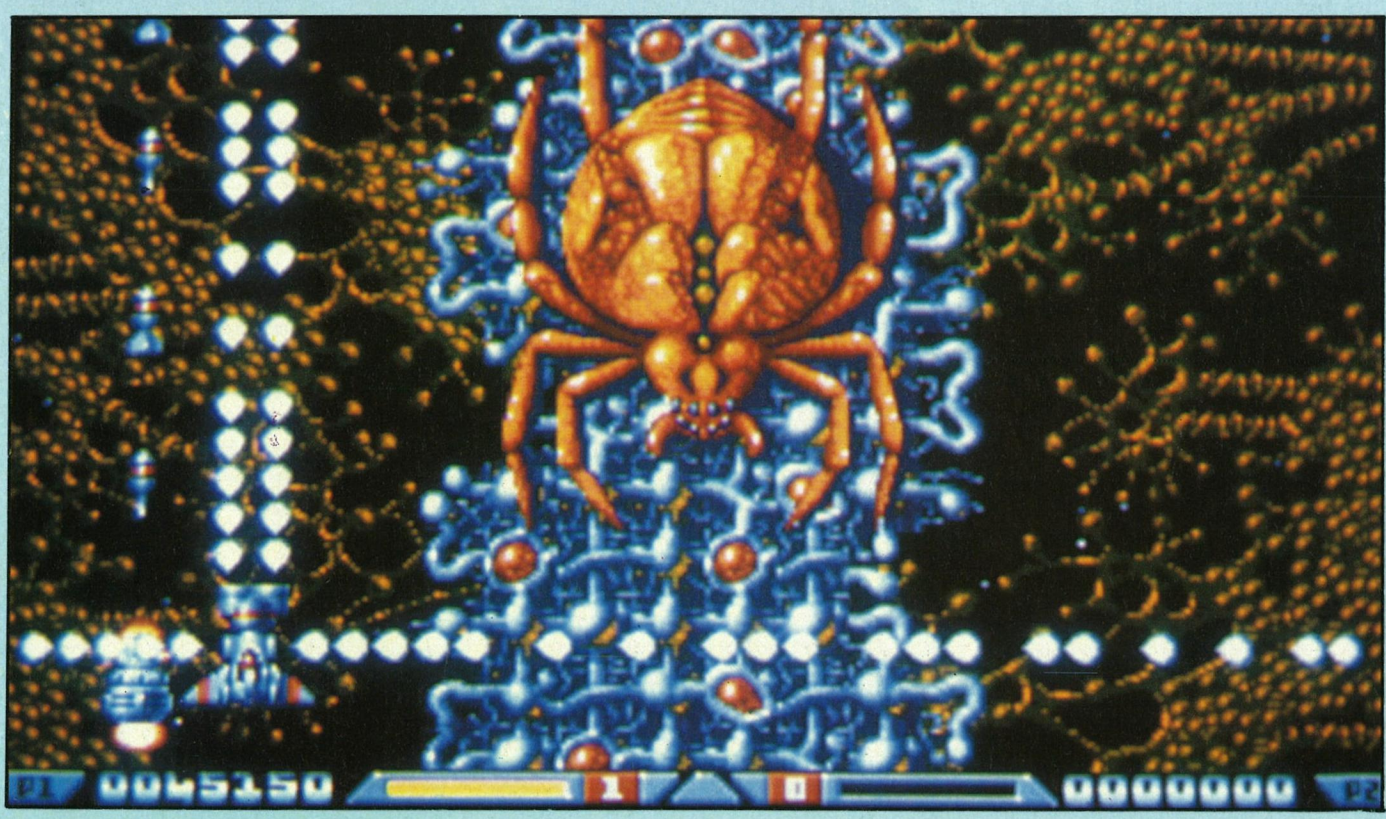
Imageworks

The Bitmap brothers have built up quite a reputation in the past ranking with the top names in programming and design teams. Xenon, their first ever program was, and still is one of the most played and talked about shoot 'em ups. Now, at last comes the sequel Xenon II, designed by those smooth and trendy Bitmap brothers with some really funky music from Bomb The Base converted by David Whittaker.

"The screen scrolls vertically with alients coming from every nook and cranny to keep you on your toes."

As in Xenon, you take up the part as a crack shot space pilot fighting off the enemy with some deadly fire arms that can be up-graded during the game. Xenon II is set over six hectic levels of alien zapping, each level depicts a certain stage in the Earth's evolution.

The screen scrolls vertically with aliens coming from every nook and cranny to keep you on your toes. Each time you destroy a wave of aliens (usually about 8 in each wave) a token will appear on the screen. The idea is to collect



as many tokens as possible to enable you to buy more expensive and effective weapons when you enter a shop. Apart from collecting tokens there are also add ons such as a rear shot, extra health and a letter Z that acts as a smart bomb, blasting everything on the screen apart from you.

"The sound enacts are good but can overshadow the music because they are a bit too loud (especially if you've got the autofire on)."

When you enter a shop you can also sell equipment to the rather unsavoury looking shop keeper, but you probably won't get too good a price for it. The main difference in Xenon II is that you can't change into a tank as in Xenon, but this enables your fighter ship to have much more fire power on board. Add on's include cannons that fire massive rocket-like weapons from the side of your ship, lasers that replace the rather puny single shot bullets, and side shot so you can blast away those aliens from every direction.

I must admit that at first I found Xenon II a little frustrating because of its difficulty, but once you have played it for a good few hours and begun to get the hang of it, it becomes more and more rewarding as you get to see different aliens and backgrounds.

The music from Bomb The Base really suits the game well and is by far the best music piece from the Bitmaps. The sound effects are good but can overshadow the music because they are a bit too loud (especially if you've got the autofire on).

The graphics, as I mentioned get better the further you get so there's that added incentive to progress through the levels. And the end of level motherships are the best I have seen in any game. If you've been anxiously awaiting the arrival of Xenon II you won't be dissapointed, the graphics and sound are excellent, and so too is the gameplay. A brilliant sequel to an equally brilliant game.

D.H.

Graphics	93%
Sound	89%
Playability	88%
Overall	90%
PRICE	£19.95

TICKET TO...

Sammy and Stuart Greene get a real education in languages and geography, with a ticket or two...

This interesting series of games on disk is published by Blue Lion Software. It includes Ticket to London, Ticket to Paris, Ticket to Spain, Ticket to Hollywood.

In each 'educational' game, you arrive with a fixed amount of money, which must be changed into local currency before you can even begin the search for a lost relative, or clues that will lead you to a family heirloom!

Ticket to London

A real whodunit! Or is it a guess who? Certainly, a detailed knowledge of the historical life of our mystery person is required before being able to store the correct answer with the ticket officer at London's Victoria Station. If like us, your knowledge of the background of such British figures is limited, not to worry. Watch out for clues on the screen, not to mention a few famous goings on in London in the 80's. All in all we give it the thumbs up. A good couple of hours of educational entertainment, coupled with a tour of London of interest to all tourists, and to Londoners themselves.

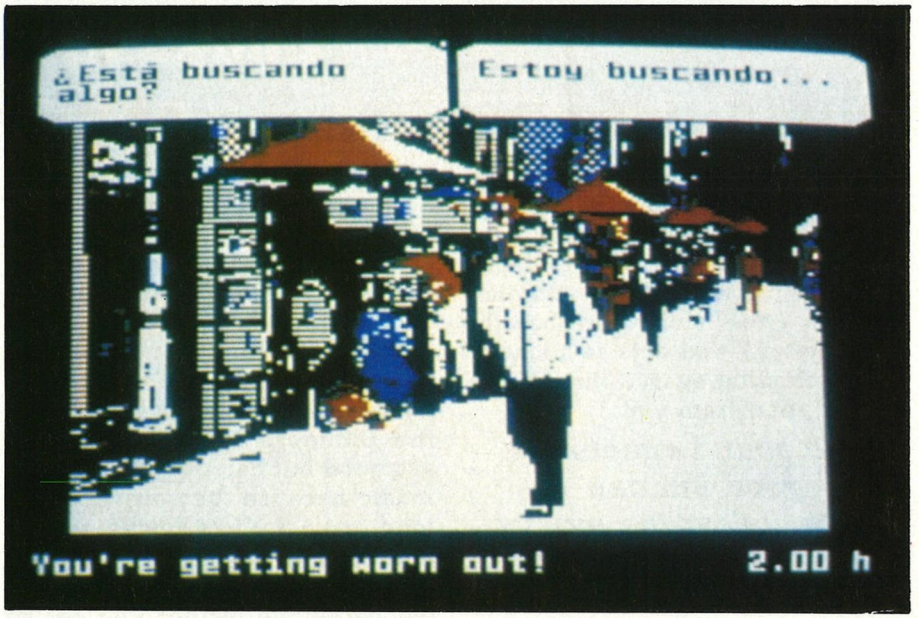
Ticket to Paris

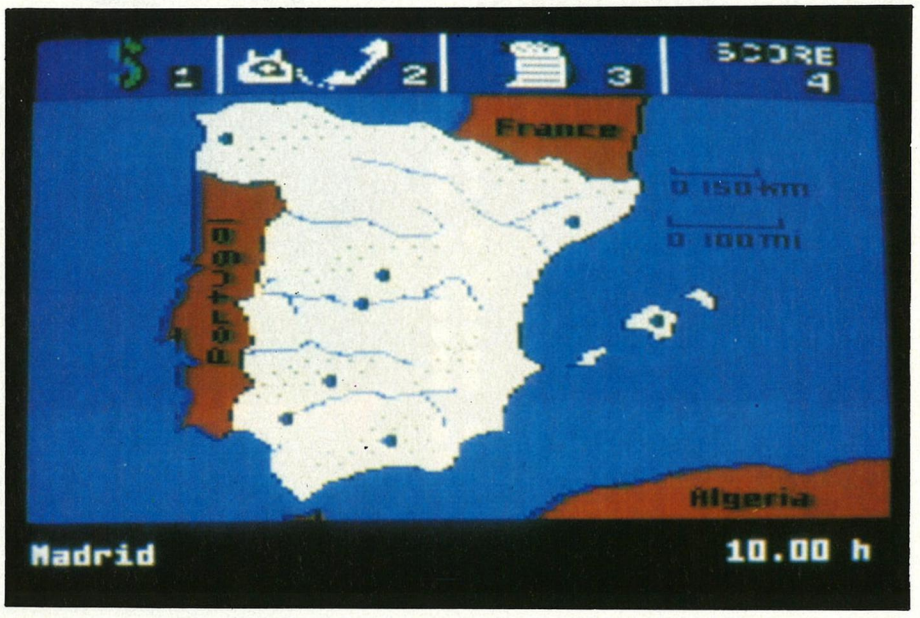
Parlez-vous Français? – No? Do not fear as this extremely clever game may be played in both English and French. But even if your knowledge of the French language is limited, why not be slightly daring and give it a go? Not only is it an inviting introduction to the French language to all we foreigners, but it is also an invitation to romantic Paris and its glorious culture.

Like all good travellers, remember to eat, sleep and keep an eye on your money belt whilst looking for your mystery man. A bit too much to remember you think? Well perhaps – but why not give Paris a go and find out for yourself.

Ticket to Spain

This time we are in Spain, competing with a distant relation for a family heirloom. Again we can choose whether we wish the questions to be asked in English or Spanish, although all the answers are in Spanish.





Ranging from the Alhambra, the Moorish fortress in Granada, to the Ramblas in Barcelona, eight tasks are presented to us and in the fulfilling of each one we receive a message which contributes towards the time and place of your meeting with your Spanish relative who will hand over the heirloom. Money and time play an important part; the first can run out, and the second, time, plays an important role, as, if you are not in bed at the right time, you collapse from exhaustion, thereby losing a day in your search.

In the process of chasing for clues you are whisked about Spain, and introduced to much of Spain's history, language, culture and geography.

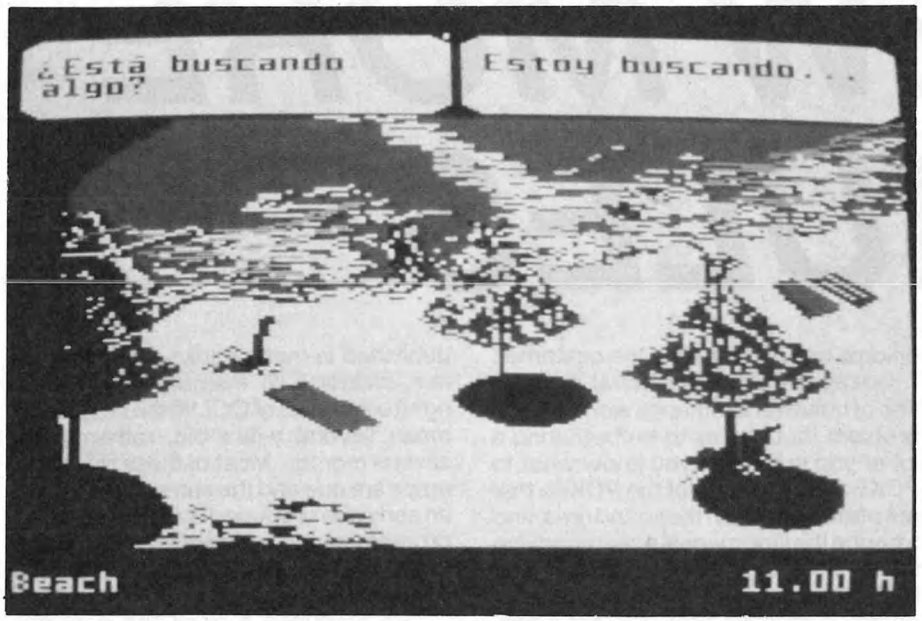
An excellent game and a really good education in the 'basics' of Spanish life and language.

Ticket to Hollywood

With the use of a move of a joystick the idea of this game is to guess the identities of 25 Hollywood personalities. A choice of decade varying between 1910 – 1980, 6 detailed 3-D maps, containing 35 different locations in Hollywood are used to gain clues as to the identity of each star. John Wayne, Clint Eastwood, Marilyn Monroe and 'Bogie' are all stars whose names appear. A great game covering 80 years of movie history – and a must for icon movie-goers with an interest in movie history.

Ticket to Washington D.C.

Perhaps not of sufficient interest, this game still offers considerable information benefit. We all know about the White House, but did we know about Lafayette Square and the Lincoln Memorial? There is a great amount of history involved, and your correct answer will lead you to the identity of a famous American from past or present. You are an investigative traveller and by following up leads, you will be given clues abouth this famous personage from America.



Conclusion

Our team was most impressed with this Blue Lion Spftware series of games. Each game varied enough not to make the series too 'look-alike'; obviously the games involving a foreign language are ideal for youngsters or adults who are either learning or know a little of the particular language. Great for schoolkids doing Spanish or French. The option available, where either or both questions and answers can be in the foreign language is valuable too, as an introduction to that country's history and geography, great too.

Ticket to London, Hollywood and Washington have not the foreign language element, but they are enjoyable on other levels. Moving about these cities in a chosen form of transport introduces us to all the different places to see.

In all these games a lot has to be absorbed, a fair amount of detective work to be done, and even if by walking in London you may be caught by genuine English rain, the educational element made it all the more interesting.

S. and S.G.

Prices: All Ticket To products cost $29.95 (US), except Ticket to Washington which costs $34.95 (US).
Contact: Blue Lion Software, 90 Sherman Street, Cambridge, Massachusetts 02140. Tel (617) 876 2500.

BACK TO COMMODORE BASICS

A FEW MORE RULES

We ran out of room last month before coming to the end of our look at a collection of Basic rules, so we will start off in their prime (as it were). Namely, PEEKing and POKEing arond the 64, and looking at ways in which the programmer gets the user to communicate with a program. Since this gives me a bit more space, we will go into them in greater detail than would have been possible last time.

PEEK and POKE come first, and as I mentioned last time I get an awful lot of correspondence from people who are totally confused by these two particular commands. In theory, there is nothing THAT alarming about them. If we POKE A,B then we are putting the value of the variable B into memory location A. We alter the content of that memory location, in other words. If we were to say B=PEEK(A), then this time the variable B is given a value equal to that contained in memory location A.

The first problems with the latter command is that many of the Commodore 64's thousands of memory locations are what is termed write-only. That is, you can POKE something there, but if you try and PEEK you will only get a random number coming up. I can think of no great reason why Commodore should have chosen to have so much write-only memory, other than their traditional one of confusing the customer.

Okay then, that is a literal description of how the commands work, but the problem that seems to be bothering a lot of you is how do you know what to POKE where? Some of the POKEs that are often used are in the sound area, and for once the little manual accompanying the 64 does explain what needs to be POKEd into which memory locations. A common practice here is to set a variable S (for sound) equal to 54272, and then POKE the appropriate locations by a command something like POKE S+24,15; that would turn the volume up to maximum level.

Sprites are also explained,and once agin you might have a variable SP (for SPrite- equal to 53248, and use something along the lines of POKE SP+1,50; this would give sprite zero a Y coordinate of 50. All of these are explained in the manual, and most of you don't seem to have any great difficulty in manipulating sprites or getting the SID chip to make a noise of some sort or another. It is when we move into other areas of memory that problems begin to arise.

There is no great mystery involved, in many instances, in knowing what to POKE where PROVIDED that you have access to a detailed Commodore 64 memory map. Such a thing has been published in many books and magazines, including (if memory serves me right) old copies of ***CCI.*** When I say old, I mean several years old, rather than several months. Most of these memory maps are one and the same, taken from an early one produced by the legendary programmer Jim Butterfield, a Canadian who was of great assistance in the early design of the 64.

He produced a clear and concise memory map that accounted for every one of the 65,536 memory locations that the 64 is capable of addressing. Why that number? Well, one kilobyte of memory contains 1,024 bytes or memory locations, the 64 has 64 kilobytes of memory, and 64 times 1,024 gives us that rather large amount of memory locations. Not every single one is described in detail, some are grouped together. For instance, the area from $C000 to $CFFF in hexadecimal, or 49152 to 53247 in decimal notation, is sometimes referred to as a 4K workspace. This is memory that is not used by the 64, but which sits above the area normally set aside for Basic programs and other things. Thus it is accessible to the land of PEEK and POKE, and this also explaines why many short machine code routines live there: they're not taking up any Basic memory.

Let's look at an unlikely, but not

impossible, situation. Suppose you had an adventure game, and wanted to store some of the messages used by the program in that memory area to avoid wasting space in Basic. Your first message might be something like "You can't go that way." You might put the message into the location with something like:

```
10 READ A$
20 FOR I=1 TO LEN(A$)
30 FOR A=ASC(MID$(A$,I,1)):POKE 49151+
I,A
40 NEXT
100 DATA "YOU CAN'T GO THAT WAY."
```

A trivial example, but with many messages the memory saved from Basic would prove very valuable indeed. I have used this technique myself before now. To read the message back, you could do it with:

```
10 FOR I=S TO F:PEEK(49151+I):A$=
CHR$(A):PRINT A$;:NEXT
```

Of course, you'd have to have values for S and F so that the program knew where to get the messages from (S and F representing Start and Finish of message), but if you had hundreds of messages each with an associated Start and Finish variable, one simple routine in an adventure program could be used to print out all your messages, rather than having hundreds of separate routines all taking up valuable memory. Anyone who has ever written an adventure in Basic for the 64 will know just how valuable that memory is.

So that is just one application for this 4K workspace, and one that could save you quite a bit of memory as well. As I said, many machine code programs also go into this work area, for the same reason; to avoid eating Basic memory. It would be as well, here to calrify another point that seems to be causing a spot of head scratching for some of you.

If a machine code program was POKEd into that memory area, just like the message was earlier, the command to activate it would usually be something like SYS 49152. On the other hand, the machine code program might not start at that precise location even though some code has been put there, and the start command might be SYS 49160. If SYS 49152 might be called an equivalent of the Basic command RUN, then this latter example might be run 100, where the lines prior to line 100 were simply REM statements.

But there are many other memory locations that can be PEEKed and POKEd, I hear you cry, and indeed there are. Few, if any of the ones that I use were ever things that I found out for myself, and the vast majority of them all came from Jim Butterfields memory map. I urge you to get a copy of it one way or another, if you don't already possess one.

To take another example. We see that starting at location 631 there is something called a keyboard buffer, and at location 198 there is what is termed the number of characters in the keyboard buffer. We'll make use of those two locations in the following example:

```
100 PRINT "[CLR,2CD]RUN[HOME]";
110 POKE 631,13:POKE 198,1:END
```

When you run that program, surely it will reach the END statement at the end of the line 110 and come to a halt? And so it will, temporarily. In line 100, we first of all clear the screen and press 2 cursor downs, then type the word RUN, then finally we press the cursor home key before closing the quotes and fininshing with a semi-colon. Line 110 is the important one. Here we put character 13 into memory location 631. Character 13 is an important one, and to the keyboard buffer it is the equivalanet of pressing the RETURN key (the RETURN key has an ASCII value of 13). POKE 198,1 then tells the computer that there is a character waiting in the keyboard buffer, so go and get it and act on it. Because of the positioning of the word RUN on the screen, when the program ends the cursor will be sitting over that word. The computer finds the character in the keyboard buffer, in this case a carriage return, and so acts on it; the same as if you had pressed the RETURN key. Pressing RETURN over the word RUN means, to the 64, run this program. So it will continue on its merry way until you press the RUN/STOP key to bring it to a halt.

All of that I learned from Jim's memory map, a most useful thing.

Another source of confusion, where PEEK and POKE are concerned, seems to centre around instructions of the type POKE A,PEEK(a) OR B. This doesn't mean POKE A with either what used to be there or the value of B, here the Basic keyword OR is being used in the sense that we discussed last month. What is happening is that the programmer wants the original contents of that memory location to remain the same. Or, to be more specific, those bits of it that were turned on before should remain turned on, and any new ones that require to be turned on because of the value of B should also get turned on. This, you may recall, is the function of the OR command. If a bit is turned on originally in memory location A, OR one needs to be turned on, or set, remains on, or set, and doesn't get altered.

Commands such as this are usually used in memory locations that have more than one effect; we saw earlier that we might POKE S+24,15 to set the volume to maximum, but that particular location has more than just the function of setting the volume to maximum. If we want to do anything else but still keep the volume at maximum, then we might POKE S+24,PEEK(S+24) OR B; to put it more simply, POKE S+24,15 OR B, although we might not always know that the current content of the location is 15.

There are many other valuable locations that you can safely experiment with. Take location 197, for instance, a way of checking how or indeed whether the user is communicating with the computer. Since that is what we are going to be looking at next, we'll close on PEEKs and POKEs by saying that location 197 can be used as just one way of getting information from user to computer. Try typing in and running the following:

```
10 A=PEEK(197):PRINT A;:GOTO 10
```

Again, after you run the program you'll have to press the RUN/STOP key to prevent the program running forever, but before you do that try pressing a few other keys to see what numbers come up. Now, break into the program and change it so that it reads:

```
10      A=PEEK(197):B=PEEK(653):PRINT
A;B:GOTO 10
```

Now you can experiment with pressing the shift keys, the Control key, and the CBM Logo key, to see what comes up. Ordinarily those keys cannot be detected from within a program, but by use of memory location 653, they can. Another secret from the memory map!

To sum up PEEKs and POKEs, the commands are straightforward in their operation, it is just knowing where to operate. For that a good memory map will help you out enormously, so seek and ye shall find. Having subtly managed to weave user communication into the argument, let's carry on with that.

There are two main commands, apart from PEEKing at the memory locations mentioned above, that give the programmer the opportunity of letting the user communicate with a program. In their most basic of Basic forms, these two commands are INPUT and GET. Input works in the folliwng way; if there is a line of a program (line 100 for example) containing the statement 100 INPUT A$, the computer will pause and wait for the user to press something. It will even prompt the user with a question mark while it sits and patiently waits.

There is only one flaw with this method, and that is that the user might just press the RETURN key without typing anything. So, you might care to have a check in the next line of you program along the lines of IF A$="" THEN 100, so that if the string that has been input, namely A$, contains nothing (or it's a null string, a they say) then go back to line 100 and let the user type something in this time.

We can elaborate on this simple example, by explaining to the user what we want. For instance INPUT "YOUR NAME ";A$ would prompt the user to type in their name. We can go still further, so if we wanted to know name, rank and serial number, we might have IN-

continued on page 72

continued from page 71

PUT "YOUR NAME, RANK AND SERIAL NUMBER";A$,B$,C$: note that the last of these is a numeric variable rather than a string one, which gives the user another opportunity of messing up the program by typing in a string instead of a number.

Note also that we are asking the user to input three separate variables. If the user only enters one and presses RETURN, the 64 will throw another question mark at them until sufficient values are entered. If the user wants to enter them all at once, then the answers must be separated by commas. A possible source of immense confusion.

Generally speaking, then, this method of getting information from the user is fraught with danger, and it is usually far safer to use the GET statement in a controlled manner. In it's simplest form, that statement works like this:

```
100 GET A$
110 IF A$="U" THEN 200:REM MOVING UP
120 IF A$="D" THEN 300:REM MOVING DOWN
130 GOTO 100
```

Line 100 sets up the sequence, which loops round via line 130 until one of the keys U or D is pressed. Nothing else is allowed, which is the beauty of this particular statement. However, you can probably see its drawback straight away. Only one key can be pressed at a time, and if we want the user to press more than one key then we have to think of some other way of doing things.

Such ways exist, naturally, and in a very simplified manner we might have an input routine that looks like this (and apologies to those who have seen it before in all its glory):

```
100 CM$=""
110 GET A$◇CHR$(13) THEN CM$=CM$+
A$:PRINT A$;:GOTO 110
130 RETURN
```

I have kept this very brief because I know some of you have seen it in these hallowed pages before, and the rest of you may care to try and expand on it after reading through the following programming thoughts.

This is intended to be used as a subroutine, and hence the RETURN statement at the end of it all in line 130. Thus we set up a string variable CM$ to be equal to nothing at the start of things, as we don't want the residue from when this routine was last used to be added on the next time around. In line 110 we sit and wait for the user to press a key.

Line 120 looks to see if that key press is equal to CHR$(13), or the user has pressed the RETURN key in other words. If they haven't, then we just add on what has been pressed to our string variable CM$ and echo this fact to the screen. Only when the RETURN key is pressed will we skip past line 120 and get to line 130, whence we return from the routine.

No scope has been given to the delete key, or anything like that. You might want the user to enter numbers only, or letters only, and again we have not such a routine. Incorporate some kind of check on the maximum number of characters that can be type in, allow the user to delete characters from the string, have options for only numbers (or only letters of a mixture of both), and so on, to bring this up to the level of a proper input routine. Something to while away the autumn evenings.

Well, I hope that has cleared up a few of the mysteries surrounding PEEK and POKE, as well as giving you some work to do over the next month by writing a neat and powerful input routine. If you can get your hands on a decent memory map for the 64, do so. As I say, many have been published in the past, so there shouldn't be too much difficulty. I'd mention one or two of my own books (Using the 64 and The Complete Commodore 64 Rom Disassembly are just two that feature the memory map, and both are available from Dickworth Publishers) but modesty prevents it.

Get to work on that input routine, then, and I'll see you next month.

P.G.

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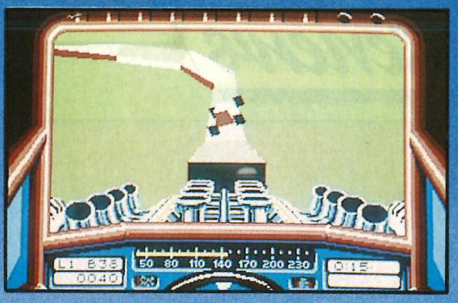

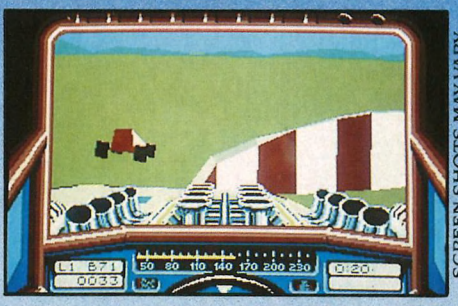

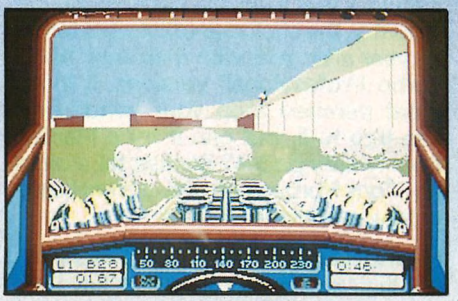

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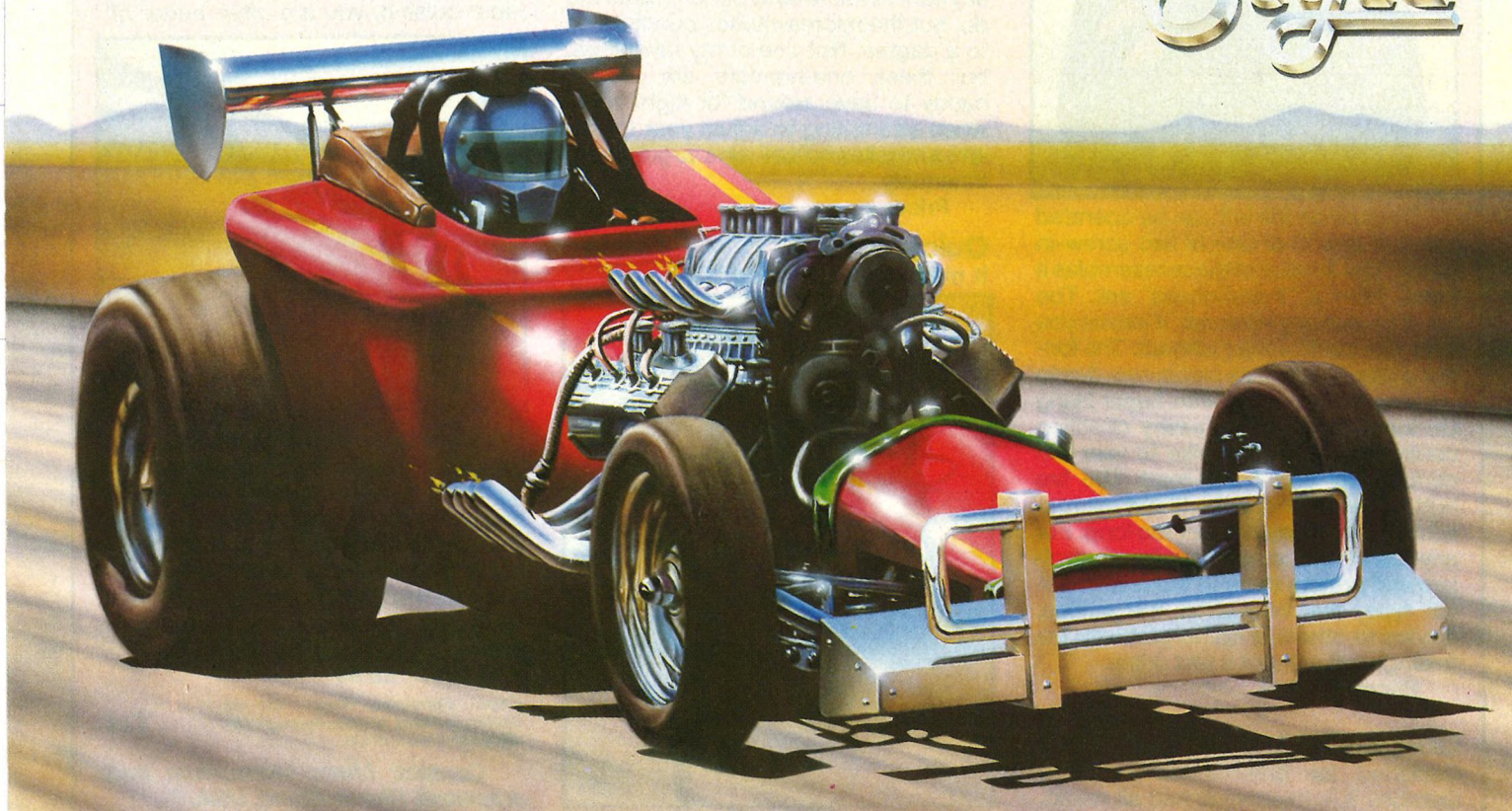

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stein

STICKS OF JOY

That essential interface linking man and machine, the joystick, is a subject of constant redesign. Taking a leaf from the book of the car industry, the stick manufacturers tempt us year after year with their new "Mk III Turbo Professional" versions. It looks great perched atop your trendy new see-thru hi-fi, but can it fry a Martian from twenty paces? Stickler for a bit of joy, Tony Horgan puts the current batch of new recruits to the test.

QUICKSHOT WIZMASTER

For their new stick, Quickshot have obviously turned to the growing number of game consoles for inspiration. It is held in two hands, with directional control on the left and two fire buttons on the right. There is an auto-fire toggle, and the stick is also compatible with the Sega system.

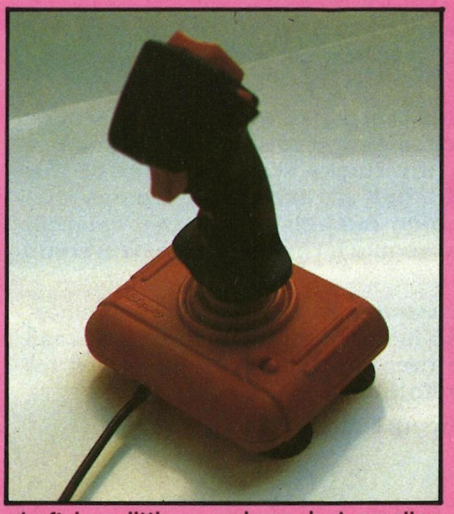
The pad on the left can be operated with the thumb or one of two screw-in sticks. The smaller of these resembles a pawn from a "travel-chess" set. Too small to give any leverage, it leaves you with less control than without. The longer screw-in is just as inaccurate due to excessive play. Used with Super Hang On for example, it's squishy direction controller causes the bike to veer uncontrollably about the road. The fire buttons work fine, but without microswitches they may not last too long. For anyone who has used similar controllers and prefers them to the conventional type, the Wizmaster will suffice. Advice to others is not to part with the folding stuff without a test drive.

Price: *£12.95*

QUICKJOY II

Designed for one-handed use, the Quickjoy II is microswitched all round. Two triggers give the choice of forefinger or thumb-operated firing. An autofire switch is handily positioned at the top of the stick.

The contoured hand grip on the

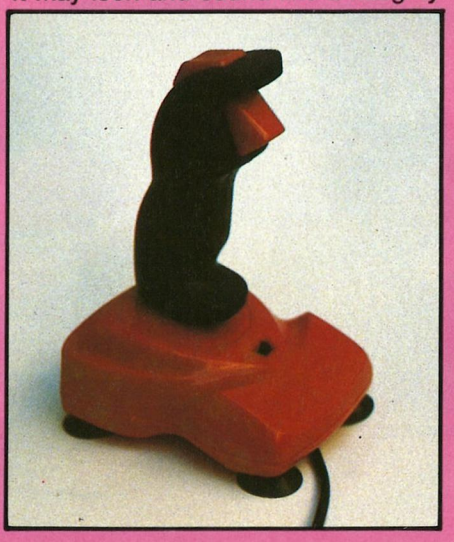


shaft is a little overdone, but smaller mits should benefit from this. It's accuracy suffers a little as all pistol-grip sticks do, but the microswitches counter this to a degree. Not one of my favourites, but these one-handers are always handy to have around for flight sims, when attempting to adjust your thrust, arm a missile and lock-on a target simultaneously.

Price: *£8.95*

Quickjoy III

It may look and sound like a naughty



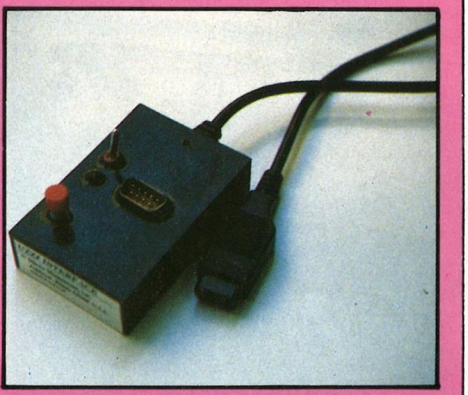
love-toy, but as the name will have informed the perceptive among you, it is actually the follow-up to the Quickjoy II. Both base and shaft have been redesigned, and the autofire has been moved.

The grip is more comfortable, and it looks a lot sleeker, but it performs no better than the Mk II. One step backwards is the repositioning of the autofire, which is now more awkwardly placed on the base. The somewhat inexact feel to the stick rules it out for precision control demanded in such games as IK+ and Kick Off. I can only recommend the Quickjoy III to the novice gamer.

Price: *£9.95*

UZZI INTERFACE

This little gizmo is a little black box, a touch smaller than a cigarette packet. It adds a variable-speed autofire feature to your joystick or mouse. The joystick plugs into the Uzzi, which then plugs into the port on the computer. If a game intentionally blocks autofire, or just happens not to be synchronised with the rapid pulsing, you are often better off



firing manually. The variable speed of the Uzzi lets you select a rate to suit any game. Built to last, moulded in a tough plastic block, it will no-doubt outlive your joystick. It would have fared better had it appeared when autofire was rarely found on a joystick. Nonetheless, well worth a try if your fave stick is autofireless.

Price: *£5.99*

Chips Computer Shop, 151-153 Linthorpe Road, Middlesborough TS1 4AG. Tel: 0462-219139.

T.H.

Contact: Micro Momentum Inc., Johnston, Rhode Island, USA.

More 64 Power

The Learning Curve

What do you do with your Commodore 64 all day? Or night, if you're one of the breed of nocturnal computer users? Does it pine away in a cupboard without anyone to talk to while the shiny new Amiga shows off in front of the television or monitor, or does it lead an active social life with you and your family? I only ask because most people who own a 64 seem to go through what you might call a learning curve. They buy the machine for a known, or sometimes unknown, reason, and then discover all sorts of things about the 64 that they never suspected of existing. Are you, in a nutshell, missing out on some of the power of your 64? Let's take a look at just some of the many avenues of exploration that await both new and seasoned 64 campaigners.

We'll start with a typical (and real!) example, in a letter I got from a Mr. Maclean of Dumfries. He tells me that he's got a 64 which he uses with a tape deck, and was asking my advice on whether to upgrade with a dedicated television rather than the family's, a disk drive, and a printer, or whether to go for the all-in-one package of an Amstrad PCW. Since I use both, for very different purposes, I can readily appreciate the merits (and faults) of both machines.

Although I have, in the past, used the 64 for word processing, almost invariably with Paperclip as the word processing program, it is now over two years since I have done anything like that and I don't expect that I will ever use the 64 in that fashion again. I bought the PCW because it was a popular word processor, and that is what it gets used for roughly 50 per cent of the time. If I had to use the 64, I would, but if I were trying to decide which to buy now it would have to be the PCW. If I was only using the machine for word processing, of course, for there are many other factors in the argument.

On the graphics front (Mr. Maclean's other point) it really is a case of "you pays your money and you takes your choice". The 64 has a screen that is 40 columns wide by 25 rows deep, the PCW has a much larger screen size of 90 columns by 32 rows. This is part of the reason why it is such a useful word processor. Both machines have high resolution graphics, ad in both cases their use is made a lot simpler with the aid of some sort of Basic extension. On the other hand, the 64 has colour, the PCW has not (all very well if you are, to use that splendid phrase, a monochrome spreadsheet junkie!). If your work requires colour and if these are the only two machines under consideration, then the PCW can remain on the shelf and the 64 can be extended in the manner indicated by Mr. Maclean.

"One of the most satisfying things to them about the 64 is that you can turn the machine on and you are ready to program in Basic straight away."

There is simply no point in the often-repeated arguments of the "my computer is better than yours" variety. It is no use a PCW fanatic pointing out the merits of bigger screen, ram disk, printer, disk drive built in, just one plug, when you point out that your work requires the use of colour and the PCW just does not have it. It is rarely the capabilities of a machine that matter, it is what you want to do with the beast that counts.

Having settled that, and assuming that you're not going to be making Alan Sugar any richer than he already is by racing out to buy a PCW, then let's get back on tracks to the 64 and look at some areas in which its specific use may be extended. Apart from word processing and all-in-one compatibility, of course, although even the 64 owner can do something about that by purchasing a dedicated television or monitor and having everything neatly plugged in on the one extension socket. Do that, and you have colour into the bargain.

It's gratifying to read some of the letters that I get, the large bulk of which are made up of correspondence from senior citizens who have taken to programming late in life now that they have retired, and now have to fill the time previously occupied by the sometimes boring but usually necessary task of earning a living.

One of the most satisfying things to them about the 64 is that you can turn the machine on and you are ready to program in Basic straight away. No need to load the language in from another disk, or tape as of old, it is there and it's ready, willing and able, if not to rock and roll all night, at least to program. Many people think that this is the avenue of exploration for them, to try and understand the programming language used in the 64 and to make the computer do something that they tell it.

A query that I often get concerns adding to the Basic language, since people seem to think that CBM Basic is inadequate and that there must be ways of improving it. I am no fan of extensions to Basic, and think that you should learn to make the best of a not particularly good job and put up with what you've got. Apart from writing programs that few others will be able to use, isn't it infinitely more pleasing to write your OWN routine to move the cursor to any point on the screen rather than using someone else's? And we all know how hard it is to make any sort of sense out of sound and hi-res graphics, but when you do manage to play a little tune or plot a line in high resolution, don't you feel better knowing that you have figured it out for yourself?

I am not going to take that argument to the ludicrous extent of writing my

More Power For Your 64

own chess program just because it is better than playing anyone else's. Not that I could write a chess program anyway, that that is beside the point. It is just that if your particular avenue of exploration involves teachig yourself programming, then you might as well do the job properly and teach yourself to program the 64 as it stands. Then, when you have gained some knowledge of this fine art, you might care to look at items like the BasicAid program in the October 1889 issue of *CCI.* These programs are useful, as well as being fun to use, and some of the commands available on other Basic extensions are genuinely helpful (reumbering a program for instance).

"It is like opening up a whole new world, the learning curve that starts off with pressing RETURN when the cursor is flashing over the READY statement and then trying to work out what the error message means."

Some people take to programming like the proverbial duck takes to water (or Australian cricketers take to Test Matches), others find it more dificult, and no Basic extension in the world is going to master the intricacies of IF .. THEN statements, particularly if they add ELSE on to the end of it, as some do. If you are finding it difficult, don't give up, you'll get there in the end.

If you simply can't be bothered to learn at all then that's up to you, but you are missing out on an awful lot of power of the 64. It is opening up a whole new world, the learning curve that starts off with pressing RETURN when the cursor is flashing over the READY, statement and then trying to work out what the error message means. Then you manage to figure out that it's interpreting the statement as READY, and no wonder it's getting confused.

But if you are getting confused, then let me assure you that you are on par with many others. Even magazine editors. No, not *CCI*, but another Commodore magazine from years ago called Printout, whose editor at the time should be nameless but who was Richard Pawson. The Commodore 3032 was just about the hottest thing in the micro world, and this eminent programmer/journalist etc. had come down to Commodore to have a look at one and perhaps program it whilst he was there. I remember it well, because I was working there at the time. Richard turned on the machine, started typing, and got terribly shocked at what he saw on the screen. He went to the repairs department, moaning about incompetent idiots like me who couldn't even get him a machine that worked properly. After he had come back with a suitably apologetic man from the repairs dept., I pointed out that the shift lock key was pressed down and perhaps he might be able to get on better if it wasn't. It is wonderful watching an irate editor deflate.

So everybody gets lost and bewildered at times, and perhaps hit under the collar to boot, but you will soon start climbing up that learning curve.

Just sticking to programming for a while, one of the best and most popular ways of teaching yourself is to look at another person's programs to see hpw they have done it. This is where magazines such as *CCI* score so heavily, because they do actually feature program listings. By modifying a program that you know to be working in the first place, you can greatly improve your own programming knowledge. I know many people who started off in this fashion, and in the end the cycle perpetuates itself. By taking on someone else's programs and changing it in various ways in order to extend your own skills, you invariably end up with a style that is half someone else's and half your own. Later on, perhaps when people are looking at listings of your own and they start learn-

continued on page 77

continued from page 76

ing, they in turn will evolve a style that is half unique, half borrowed. And so it goes on, the original contribution becoming ever more diluted as people grow to develop their own particular styles and skills. My own style seems to be one of "sit down and bash it out" type, beavering away at a problem until it's solved, which perhaps explains why my programs sometimes have a habit of leaping about all over the place. But always remember, if it works, don't knock it!

"If you are new to Basic then the thought of wading through screen after screen of assembler code will no doubt be enough to make your head swim."

Another great source of programs to study, apart from ***CCI***, would be something like Compunet, and I am glad to see that it is regularly featured in ***CCI***. Never logged on to it? would strongly recommend everyone who can do so to at least look at it once without dismissing it out of hand, because it really is a wonderful service to owners of the 64 and it is well worth having an explore around the system. Of course, it is available for other computers as well as the 64, but I would guess that more 64 owners use it than anything else. There are many other services as well, but as Jonathan Littlewood points out in his columns, you do have to watch out for the telephone bill at the end of the quarter. However, careful use of the system should help to keep costs to a minimum, especially if you use the telephone only when you really have to.

There are plenty of demonstration programs on Compunet (and others) for you to look at, and many of them are quite stunning. The most impressive of them all will, in all probability, have been written in machine code, and if you are new to Basic then the thought of wading through screen after screen of assembler code will no doubt be enough to make your head swim. Still, there is always the thought that if you persevere then one day you might be writing demonstration programs like that as well.

And, if your new-ness to the machine lies in assembler programming rather than Basic, then these programs can act in just the same way as their (usually) simpler Basic counterparts. By seeing how an experienced programmer goes about tackling a problem you can gain valuable insights into strengthening your own programming.

Something else to study, for the machine code newcomer, would be the assembly code of the 64 ROM itself, the very life blood of the machine. Take a look how the 64 handles the PRINT command from Basic, for instance, and see which built-in routines you will be able to use in your own programs without having to go through the trouble of having to write something like that yourself.

For example, I learnt how to use a machine code call that used more than one parameter (SYS 49152,10,12 for instance) by studying the POKE command in its assembler form in ROM. That too requires more than one number in order to be a valid command (POKE 53281 without a comma and another number simply produces a sysntax error) and so by seeing how the 64's own programmers did it I was able to work out how to do the same sort of thing in my own programs.

So you see, there are many ways in which the newcomer to programming, be it in Basic or machine code, can profitably expand their knowledge of the subject. And by doing that you will obviously be squeezing that little bit more power out of the 64. Follow the learning curve, as have so many other 64 programmers, and you really begin to marvel at that box of plastic in front of you. Not a computer, more a way of life! Bye for now.

P.G.

A CONCISE INTRODUCTION TO GEM

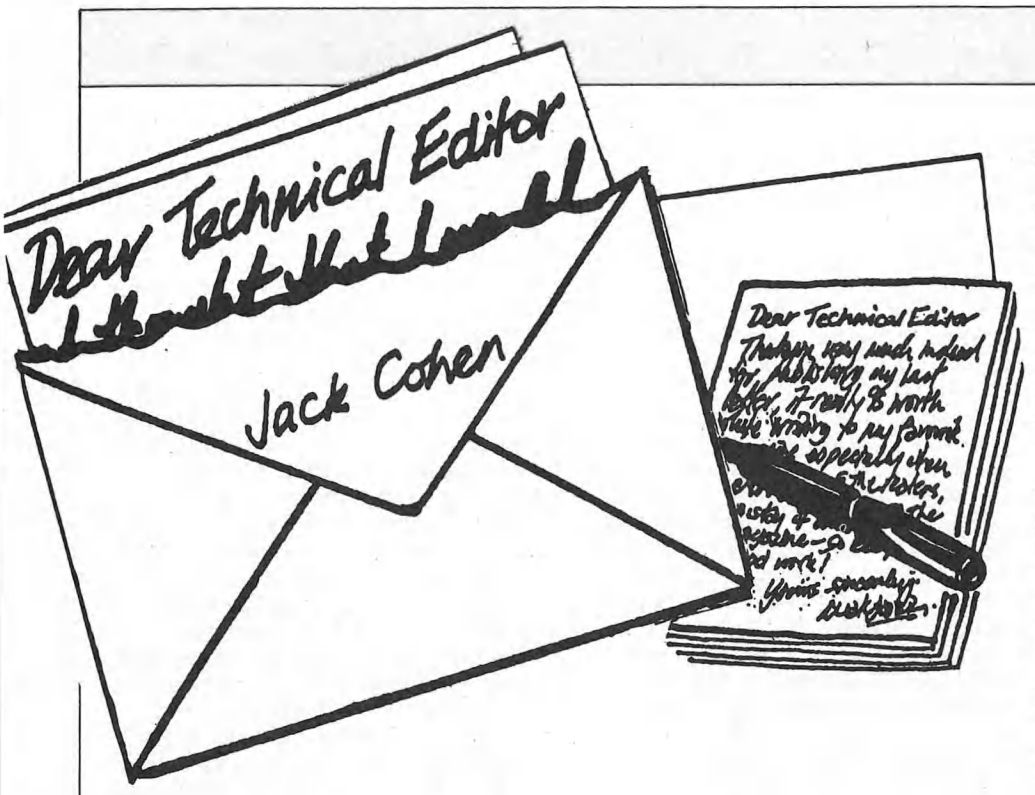
(Bernard Babani £2.95)

This is the latest in the series of 'Concise' books from Bernard Babani Publishing. The book was written by J.W.Penfold and is a slim volume of approximately seventy pages costing £2.95.

As its title suggests the purpose is to introduce the Digital Research product GEM. This is the desktop/window enviroment system that had become the vehicle which a large number of major software packages have been released.

The first chapter, 'What is GEM', briefly outlines the basics of GEM and the way in which the GEM windows are controlled. Also included is a guide for customising the Desktop environment. The following five chapters go on th descibe in more detail the Application programs are handled under GEM. Chapter five explains how GEM appears in the Applications themselves and the final chapter, six, details how the GEM process Output, handles printers, plotters, cameras and screens.

If you are considering purchasing GEM or are confused by its complexities, this is the book for you. Indeed at a price of £2.95, there is little on workings of GEM. Chapter two covers the menus and accessories that are available within GEM. Chapter three covers file handling and chapter four the way in which the market to compare it with and it is certainly a good way of helping you to make up your mind. On the other hand it is not really a book for the experienced GEM user but then that it not the market at which it is aimed.



Dear Technical Editor,
Please could you help me. I have a Commodore 64 complete with disk drive, and a Star Lc–10C colour printer, which I have had for 9 months, and I have tried everything to get it to print colour pictures from games, etc. I have two main printer dumps, but they are mostly Epson dumps, in Action Replay and blazing Paddles, and they only do black and white pictures on my printer.

Please, can you tell me if there is anywhere I can get a colour printer dump for the Star Lc–10C printer, and can you give me its address, as I am very frustrated?

Yours Faithfully,

Nigel Ellis

Dear Nigel,
Most producers of 64 game software would not provide a screen dump to give colour on a colour printer. They would need to provide parameter changing facilities to cover most standard colour printers and the market for this is too small to justify the extra cost.

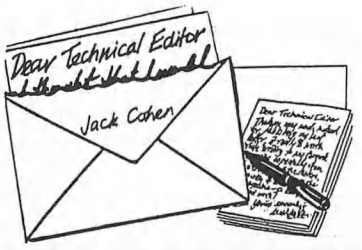
Contact the producers of your game to see if they have any colour printer routines.

One would expect these facilities in a colour art package but not games. However, if you suspect a fault in your printer then contact Star Micronics Tech dept. at High Wycombe on 0494–471111.

Black and white screen dumps can be made by use of most utility cartridges. If you would like to experiment yourself the use the following routine.

```
1100 OPEN 1,4,6
1110 PRINT#1,CHR$(24)
1120 OPEN 4,4:PRINT#4
1130 FOR I=0 TO 999;J=PEEK(I+1024)
1140 IF J=32 THEN K=9:GOTO 1160
1150 K=(J AND 127) OR ((J AND 64)*2) OR ((64 AND 2)*2)
1160 PRINT#4,CHR$(K);
1170 X=X+1:IF X=40 THEN PRINT#4:X=0
1180 NEXT
1190 CLOSE4:CLOSE1
```

Amend this program to look at colour information for each screen position. Send also printer controls (obtained from the printer manual) to printer before screen dump operates.



Dear Technical Editor,
I'm writing because I need an information. Since Austria doesn't belong to the EUROPEAN COMMON MARKET it is hard to get information on new products. I recently read in your magazine about a TV–MONITOR, I want to know if it is worthy to get one, and I also want to know if they are in stereo and have HIGH resolution, like the Monitor 1084s.

If this is not a good idea, do you think it would be better to get a regular monitor with the PHILLIPS TV Tuner?

I'm waiting for your answers,

Sinceriouslv.

David Tevel Rosenchan

Dear David,
Best is to use a TV tuner with the 1084, or you can use a video tape recorder (which has a tuner)

RGB(A) is required for best results for the Amiga.

Dear Technical Editor,
I have recently bought an Action Replay Backup Cartridge from datel Electronics.

In the advert is states it will backup any programs, this is not the case. I have a large selction of multi–loaders on tape, as well as many other tapes. the reason I bought this cartridge was because it stated it could backup any program.

I am not using it for pirate means but just to save my tapes to Disk which I have just bought. I find the Cartridge very good in many ways, but it will not do backups of multi loader programs. I wrote to Datel Electronics but the reply from them is that they no longer sell the product that will perform this.

As you can see I am very upset about this, I do not have a lot of money and have to save hard to buy things, then when I have bought a product that does not do the job it has upset me a lot.

I should like to have your views on this matter and also warn any one else who thinks like me it will do the job.

Do you know of any product that I can use with my Action replay, or do I have to buy another Backup Cartridge that will do the job? I hope that you can help me and I look forward to your reply. Please find SAE for your reply. I think that your product is about the best for information and programs. You may print all or any part of this letter for your readers. Thankyou.

Yours faithfully,

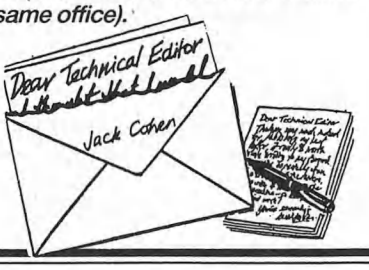
H.Lane

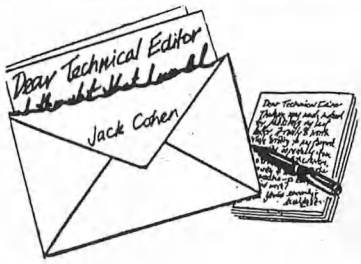
Dear H.Lane,
These adverts are prepared some months in advance of issue dates. What happened is that the Copyright, Designs and Patents Act 1988 came into force on 1st August, 1989 and until the new law is tested in the courts, cartridge producers (and others) are being very cautious in the product they sell.

They cannot distinguish between you, as a copier of legally purchased software who only wants a copy as protection against damage, and those engaged in piracy (and piracy includes giving a copy to friends).

Giving the irignal to others whilst keeping a copy for yourself is stil piracy.

It is true that most software producers advise their customers to make backups and store the orignal in a safe place. But their licence is only grantted for the one machine (even if there are more machines in the same office).





Dear Technical Editor,
My family and I have a Commodore C64C. I saw your eviews of the "Write stuff with Sam" the trouble is I have no disk drive (can't afford it). My oblem is I have a partially sighted son who has trouble seeing the screen. When we saw your reviews of Software Automatic Mouth it sounded great.

Could you please tell me if there is a tape of this software, if not is ther any other way of geting the computer to talk that does not cost an arm and a leg to buy and is easy to work.

Another thing, is ther any way of getting the computer to work in 20 cols 12 rows. Which would type the same as a computer in 40 x 25 without having to use Shift or anyother key before typing?

Yours Sincerely,

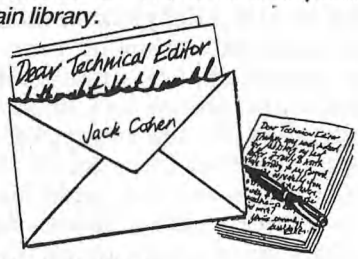
M.Winsor

Dear M.Winsor,
I cannot suggest a cheap tape backed method of speech on the Plus/4 because too many bytes are required.

An alternative to disks would be the cartridge based speech system, as mentioned in a previous issue by a reader.

Why not put a FREE ad in our classified section for this cartridge. For a larger character size you should apply to buy a second hand VIC 20 very cheaply using the same method.

ICPUG (see advert) has many FREE programs for the VIC 20 in their public domain library.



Dear Technical Editor,
I own a Commodore +4, MPS–801 printer and datasette. I have written my own program, a catalogue for my casettes, but I am running out of memory space.

Please can you answer these 3 questions:

1) is it possible to get a Ram Pack for the Plus/4?

2) Does a Commodore 116 exist? (It does according to my Datasette (1531) instruction manual? If so, does it have the same commands? and if this is so, where can I get one from?

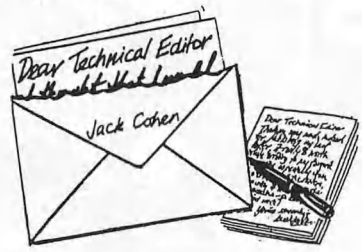
3) All diskdrives say Commodore 64 compatible. Does this mean they are +4 compatible also?

Your help is much appreciated,
M.Thornfield

Dear M.Thornfield,
1. A 64K Ram was produced for the C16, but I do not know if anything was produced for the Plus 4.

2. The 116 was part of the family of micros that resulted in the Plus 4. It had 16K of RAM and only a small number were built. All were sold in West Germany and the commands were very similar to the Plus 4.

3. yes. C128 has a similar syntax for its basic (Basic 7)



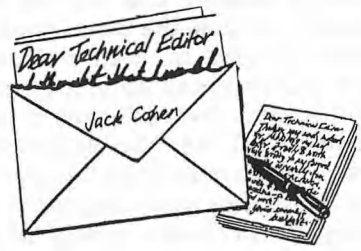
Dear Technical Editor,
I purchased a disk drive switch and joystick/mouse switcher from Trilogic, after testing them I found the both to be faulty so I returned them.

Trilogic sent them back to me with a letter saying I should operate them with the Amiga power down. Frankly, since I am new to the Amiga I do not understand what this implies, so I would be grateful if you could explain what this means.

Yours Sincerely,

Q.Mishir

Dear Q.Mishir,
This means that the power switch on the Amiga must be OFF when you change the switch on the disk drive or the joystick/mouse switch. Then all should work.



Dear Technical Editor,
During 1986, I purchased from London a Commodore 6 colour printer MCS–801. the printer as well as the ribbons for this printer appears to have disappeared now.

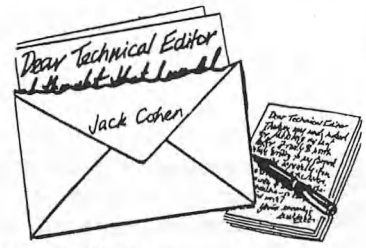
I am in desperate need of a ribbon for this printer and I could not locate one in London during my last visit. Could you please help me locate a source in the UK from where I may purchase this ribbon, either personally or through mail.

While I wawait your advice, I thankyou and remain.

Sincerely yours,

Benoy R. Bala

Dear Benoy,
Try Consup for supplies on (01)–703–0011



Dear Technical Editor,
(If you're all still speaking to me after Peter Gerrard's article on 'The 128 Gamer' in August's issue!?), I am writing in with the solution to Dr. Wrights problem in the Sept. Issue, that of using a 'Warp 25' Cartridge with the Oceanic disk drive.

I have the Action Replay (Warp 25?) Cartridge, and Excelerator +, (Ex-Oceanic) drive, and to load files saved in WARP 25 format you must either ... Save the Cartridge's LOADER onto the disk, then load the Warp 25 file via this loader, or, more conveniently, install the Cartridge's FASTLOAD, display the Directory, move the cursor to the required filename, and press F1.

You CANNOT load a Warp 25 file with LOAD "",8,1, as these 'Warp' files are saved in a format the normal DOS will not recognise, so the Cartridge's FASTLOAD or a saved LOADER must be used. The only drive 'Warp 25' will NOT work with is the 1581.

Still on Cartridges, (Aas used with a motherboard which I wrote about before), the slots on my Datel motherboard are nowhere neart as tight a fit as the Cartridge Port on my computer, and due to the resulting 'wobble', any movement of the cartridge when pressing the button, can, more often than not, 'Freeze' the computer solid due to the loose connections. I have solved this particular problem by having a second cartridge in the next 'slot', inserted a polystyrene 'wedge' between the two, and fastened a strong rubber band around the lot! This makes the Freeze cartridge much more rigid in the slot, with no need to hold it 'rock steady' and pray, when pressing a button.

Incidentally, the WORST that can happen if you move the cartridge when in use seems to be the computer will just 'freeze'... before I made my A.Replay more secure as above I accidentally knocked it right out of the board to an angle of 45 degrees or so with no ill effects other than the computer resetting!

Yours,

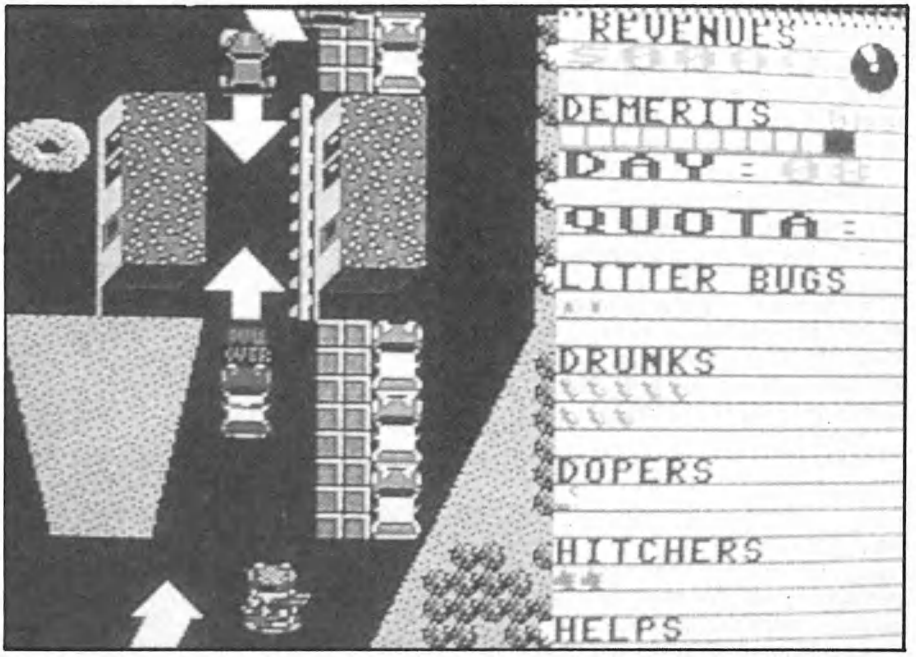
Mike Vine

P.S. (Feel free to pass on my address to Dr.Wright regarding the 'Warp 25' roblem if this isn't published... I'd prefer an S.A.E. to a phone call though!!)
Much more help for Dr. Wright (Sept issue)

APB

Tengen

Sitting modestly in the shadow of a top of the range hydraulic Chase HQ coin-op, all too often Atari's alternative cops 'n' robbers round 'em up goes unnoticed. It's not that APB's gameplay is less addictive than those fairground rides masquerading as coin-ops, but it's bells and whistles that pull the punters. So have Domark landed themselves a dead fish with APB? On the contrary; a coin-op that stands up soley on its wizz-bang cabinet holds little potential for a home computer conversion. With gameplay based around good old fashioned two dimensional sprites and scrolling, this could have made an excellent 8-bit conversion.



" Your car rotates very smoothly through 360 degrees (in 24 frames), and the screen scrolls accordingly."

For a week, you assume the identity of Officer Bob, an ambitious young cop keen to prove his worth. Before you are let loose in the anarchic, crime-stained city, you get the chance to brush up your skills in the station car park. Arresting traffic cones may sound patronising, but it introduces you to the workings of the game without killing you off the second you slip up. Taking a completely different approach to Chase HQ, APB (All Points Bulletin) is more like a scrolling Super Sprint. Your car rotates very smoothly through 360 degrees (in 24 frames), and the screen scrolls accordingly. To arrest the cones, you need the help of your siren. This 'siren' is a small crosshair which extends a short way from the front of the car. When your target is under the crosshair, a tap of the firebutton sounds the siren, arresting that particular vehicle (or traffic cone).

A swift lap of the car park should be enough to get to grips with the controls. Next follows your first assignment. The city is full of motoring litter-bugs. The Sarge informs you of a crackdown on these irritants, and gives you a quota of arrests to be fulfilled before the day is out. Luckily for you, the litter-bugs all drive around in identical pink cars. If there was no other traffic on the road, your job would be a cinch, as all the criminals disappear once arrested. As it happens, the highways are clogged with innocent civilians going about their business. These are a pain in the neck, not least because of the innacurate collision detection.

Further assignments include bringing in the dope-head Freddy Freak (no sign of Phineas or Franklin) and rounding up drunk drivers. Bonuses are generously sprinkled across the city in the shape of money bags, hitchhikers, doughnut shops and garages.

This all works very well in the coin-op because the whole thing has been programmed extremely neatly. The 64 version uses only just over half the screen for the game itself (presumably to emulate the coin-op's vertical VDU), and scrolls jerkily. Other than the pleasant animation of your car, the graphics are uninteresting. The sound effects and music are extremely flat and empty; a disappointing effort from David Whittaker. I can see only avid fans of the coin-op putting up with APB's unnecessary annoyances. In the wake of Xybots, and now this, is it too much to hope for a decent Toobin' conversion? Prove me wrong, Domark. *T.H.*

Graphics:	60%
Sound:	38%
Playability:	55%
Overall:	56%
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LC10 MONO for C64 & 128 only	149.56	172.00
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NR 10 9 PIN 80 column 240CPS/60CPS NLQ	344.34	396.00
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All printers in this range have the option of a low cost 7 colour upgrade module which can be fitted by virtually anyone.

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IBM PC/AT/XT.	149.43	171.85
AMIGA	149.43	171.85
ATARI ST	N/A	N/A

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IBM PC/AT/XT

AMIGA	236.43	271.89
ATARI ST	225.20	258.99
	N/A	N/A

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MONO	Phone	Phone
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ECD	1200.00	1380.00

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MONO	1353.04	1555.99
COLOUR	1866.08	2146.00

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MONO	1653.91	1902.00
COLOUR	1866.08	2146.00
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PC60 TOWER 386	Phone	Phone

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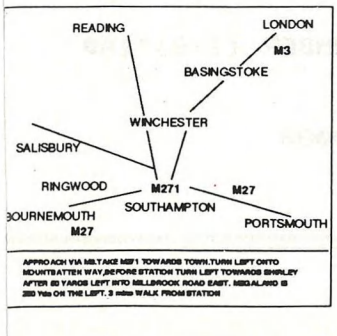

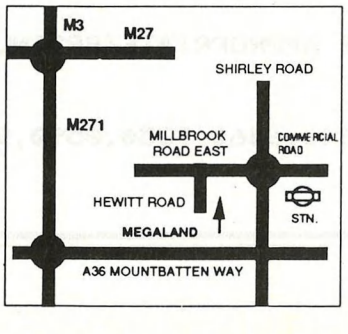

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AEOF 220 DATA 152,233,025,176,211,134,250,138,233,039,176,204,165,252,2388
PEFC 230 DATA 233,039,176,198,032,000,192,132,253,152,233,025,176,188,2029
FNBH 240 DATA 230,253,165,253,229,251,144,180,141,003,195,165,252,229,2690
EFCG 250 DATA 250,144,171,141,002,195,169,004,141,001,195,165,250,141,1969
DGFP 260 DATA 000,195,165,251,201,000,240,018,198,251,173,000,195,105,1992
DCAM 270 DATA 039,144,003,238,001,195,141,000,195,076,226,192,096,032,1578
INGL 280 DATA 163,192,173,001,195,133,251,173,000,195,133,250,173,003,2035
NGBK 290 DATA 195,133,254,165,254,201,255,240,025,198,254,169,001,172,2516
EDHC 300 DATA 002,195,145,250,136,016,251,165,250,105,040,133,250,144,2082
LKCK 310 DATA 002,230,251,076,013,193,096,169,032,141,022,193,032,251,1701
DDEM 320 DATA 192,173,001,195,105,211,133,251,173,134,002,141,022,193,1926
AGOD 330 DATA 032,003,193,169,032,141,046,193,096,032,163,192,169,003,1464
HJFC 340 DATA 133,252,169,195,133,253,173,001,195,133,251,173,003,195,2259
AEEB 350 DATA 133,254,173,000,195,133,250,162,000,165,254,201,255,240,2415
FMOC 360 DATA 068,198,254,172,002,195,230,252,208,002,230,253,152,204,2420
KGJK 370 DATA 002,195,240,008,109,254,194,201,040,076,139,193,109,254,2014
AMCG 380 DATA 194,201,041,016,004,161,252,145,250,136,016,222,165,250,2053
NCLL 390 DATA 105,040,133,250,144,002,230,251,165,251,201,008,240,010,2030
GCEP 400 DATA 201,007,208,191,165,250,233,232,144,185,032,061,194,096,2199
OBLH 410 DATA 032,075,193,173,001,195,105,211,133,251,032,091,193,096,1781
ALDG 420 DATA 169,000,141,085,194,141,254,194,141,255,194,169,177,141,2255
IBPB 430 DATA 141,193,169,129,141,143,193,169,250,141,142,193,169,252,2425
BMNB 440 DATA 141,144,193,032,178,193,096,174,085,194,224,255,208,003,2120
GOEN 450 DATA 076,128,192,032,000,192,140,254,194,132,250,152,233,040,2015
ECNC 460 DATA 144,003,076,128,192,032,000,192,140,255,194,132,251,152,1891
FDIN 470 DATA 233,025,144,003,076,128,192,032,216,192,169,161,141,141,1853
HAJE 480 DATA 193,169,145,141,143,193,169,252,141,142,193,169,250,141,2441
CHMA 490 DATA 144,193,032,078,193,162,220,142,161,193,202,142,165,193,2220
FELO 500 DATA 032,181,193,162,008,142,161,193,202,142,165,193,096,165,2035
ELPP 510 DATA 254,201,255,240,017,198,254,172,002,195,230,252,208,002,2480
MCCJ 520 DATA 230,253,136,016,247,076,061,194,096,255,000,000,000,000,1564
S-ENTRY CODE = FELB
```

Conversion

Cpl D. Baillie C64, C128, +4

Although the program may seem very long, it is easy to enter if you look carefully. It gives you many types of numeric conversions.

```
EALJ 100 PRINT"[CLR]"
ACNF 110 POKE 53280,0:POKE 53281,7
NDDN 120 PRINT"[RED][SP6]DAVE'S CONVERSION PROGRAMME[BLK]"
JDGL 130 PRINT
AIJJ 140 PRINT:PRINT" WHAT DO YOU WISH TO BE CONVERTED?"
ONAH 150 PRINT
EKFK 160 PRINT" 1-LENGTH[CL8][CD]2-AREA[CL6][CD]3-VOLUME[CL8][CD]4-WEIGHT
OINK 170 PRINT" 5-LOAD[CL6][CD]6-PRESSURE[CL10][CD]7-TEMPERATURE
HPFJ 180 PRINT" 8-ENERGY
BBNP 190 PRINT
AGEL 200 A$=""
CGEC 210 PRINT" SELECT ONE BY PRESSING THE APPROPRIATE[SP2]NUMBER (1-8)";A$
HEAG 220 GET A$:IF A$="" THEN 220
HGCL 230 IF A$ <"1"OR A$[SP2]>"8"THEN 220
NNJM 240 ON VAL (A$) GOTO 250,1590,3220,4840,6460,7330,8590,9080
GJDP 250 PRINT"[CLR]"
BIJM 260 PRINT"[RED][CR16]LENGTH[BLK]"
```

```
ICAA 270 PRINT:PRINT
HEAM 280 PRINT" WHICH CONVERSION DO YOU WANT?"
JCHI 290 PRINT:PRINT
NEBF 300 PRINT" 1-MILLIMETERS - INCHES
OJFE 310 PRINT" 2-METERS - FEET
ANKJ 320 PRINT" 3-KILOMETERS - MILES
EILJ 330 PRINT
GDIO 340 PRINT" 4-INCHES - MILLIMETERS
OILM 350 PRINT" 5-FEET - METERS
NIAK 360 PRINT" 6-MILES - KILOMETERS
FAMP 370 PRINT:PRINT
GANJ 380 B$=""
FNLA 390 PRINT" SELECT ONE BY PRESSING THE APPROPRIATE[SP2]NUMBER (1-6)";B$
EONF 400 GET B$: IF B$="" THEN 400
BJNK 410 IF B$ <"1" OR B$>"6" THEN 400
LKCE 420 ON VAL (B$) GOTO 430,610,790,970,1150,1330
MDJP 430 PRINT"[CLR]"
MIPP 440 PRINT"[RED][CR9]MILLIMETERS TO INCHES[BLK]"
LBAH 450 PRINT:PRINT
GEOL 460 INPUT" ENTER NUMBER OF MILLIMETERS";C
GMKC 470 PRINT:PRINT
JIII 480 CC =C *.03937
EOCJ 490 PRINT C "MILLIMETERS = "CC "INCHES"
DGFB 500 PRINT:PRINT
IFIO 510 D1$=""
OIGM 520 PRINT" SELECT ONE OF THE FOLLOWING:";D1$
BAIP 530 PRINT:PRINT" 1-ANOTHER CONVERSION"
HPIB 540 PRINT" 2-RETURN TO 'LENGTH' MENU"
ICHN 550 PRINT" 3-RETURN TO 'MAIN' MENU"
HDDL 560 GET D1$:IF D1$="" THEN 560
MGBO 570 IF D1$ <"1" OR D1$ >"3" THEN560
EFJL 580 IF D1$="1" THEN 430
LFDO 590 IF D1$="2" THEN 250
LGPM 600 IF D1$="3" THEN 100
FKAA 610 PRINT"[CLR]"
LCKM 620 PRINT"[RED][CR15]METERS TO FEET [BLK]"
HCHH 630 PRINT:PRINT
HLLD 640 INPUT" ENTER NUMBER OF METERS";C
BEJJ 650 PRINT:PRINT
IJNH 660 CC =C *3.28084
OINI 670 PRINT C "METERS = "CC "FEET"
DHJG 680 PRINT:PRINT
ANOM 690 D2$=""
DJIN 700 PRINT" SELECT ONE OF THE FOLLOWING:";D2$
EMAN 710 PRINT:PRINT" 1-ANOTHER CONVERSION"
FFMH 720 PRINT" 2-RETURN TO 'LENGTH' MENU"
JFKI 730 PRINT" 3-RETURN TO 'MAIN' MENU"
ICKA 740 GET D2$:IF D2$="" THEN 740
LEPP 750 IF D2$ <"1" OR D2$ >"3" THEN740
DOHM 760 IF D2$="1" THEN 610
MJPG 770 IF D2$="2" THEN 250
HJJO 780 IF D2$="3" THEN 100
CNNO 790 PRINT"[CLR]"
AEGM 800 PRINT"[RED][CR11]KILOMETERS TO MILES[BLK]"
NHAI 810 PRINT:PRINT
COAF 820 INPUT" ENTER NUMBER OF KILOMETERS";C
AKKN 830 PRINT:PRINT
LBNI 840 CC =C *.62137
BOBN 850 PRINT C "KILOMETERS = "CC "MILES"
FPDE 860 PRINT:PRINT
HLPD 870 D3$=""
IJLF 880 PRINT" SELECT ONE OF THE FOLLOWING:";D3$
```

```
GEJK 890 PRINT:PRINT" 1-ANOTHER CONVERSION"
GKHP 900 PRINT" 2-RETURN TO 'LENGTH' MENU"
CHED 910 PRINT" 3-RETURN TO 'MAIN' MENU"
MAEN 920 GET D3$:IF D3$="" THEN 920
HFAK 930 IF D3$ <"1" OR D3$ >"3" THEN920
HOCB 940 IF D3$="1" THEN 790
IDCK 950 IF D3$="2" THEN 250
CPLF 960 IF D3$="3" THEN 100
OBAB 970 PRINT"[CLR]"
OELO 980 PRINT"[RED][CR11]INCHES TO MILLIMETERS[BLK]"
HDFB 990 PRINT:PRINT
OBAB 970 PRINT"[CLR]"
OELO 980 PRINT"[RED][CR11]INCHES TO MILLIMETERS[BLK]"
HDFB 990 PRINT:PRINT
DNCN 1000 INPUT" ENTER NUMBER OF INCHES";C
JOPK 1010 PRINT:PRINT
IIEK 1020 CC =C *25.4
EABK 1030 PRINT C "INCHES = "CC "MILLIMETERS"
MLGD 1040 PRINT:PRINT
KCAM 1050 D$=""
JCAL 1060 PRINT" SELECT ONE OF THE FOLLOWING:";D4$
EAMP 1070 PRINT:PRINT" 1-ANOTHER CONVERSION"
JGOE 1080 PRINT" 2-RETURN TO 'LENGTH' MENU"
MHOA 1090 PRINT" 3-RETURN TO 'MAIN' MENU"
NAFA 1100 GET D4$:IF D4$="" THEN 1100
CFBI 1110 IF D4$ <"1" OR D4$ >"3" THEN1100
GCAB 1120 IF D4$="1" THEN 970
IKME 1130 IF D4$="2" THEN 250
CNPG 1140 IF D4$="3" THEN 100
KHNN 1150 PRINT"[CLR]"
KDLJ 1160 PRINT"[RED][CR11]FEET TO METERS[BLK]"
CKNL 1170 PRINT:PRINT
ELNN 1180 INPUT" ENTER NUMBER OF FEET";C
DKKD 1190 PRINT:PRINT
DIKL 1200 CC =C *.3048
INOP 1210 PRINT C "FEET = "CC "METERS"
AIBD 1220 PRINT:PRINT
AHLC 1230 D$=""
EBOP 1240 PRINT" SELECT ONE OF THE FOLLOWING:";D5$
BMEN 1250 PRINT:PRINT" 1-ANOTHER CONVERSION"
MIJH 1260 PRINT" 2-RETURN TO 'LENGTH' MENU"
LKNF 1270 PRINT" 3-RETURN TO 'MAIN' MENU"
GODG 1280 GET D5$:IF D5$="" THEN 1280
IGOH 1290 IF D5$ <"1" OR D5$ >"3" THEN1280
DLME 1300 IF D5$="1" THEN 1150
DHFO 1310 IF D5$="2" THEN 250
JLMB 1320 IF D5$="3" THEN 100
GJCG 1330 PRINT"[CLR]"
BKKM 1340 PRINT"[RED][CR11]MILES TO KILOMETERS[BLK]"
FCOA 1350 PRINT:PRINT
OANJ 1360 INPUT" ENTER NUMBER OF MILES";C
IPEF 1370 PRINT:PRINT
MFIF 1380 CC =C #1.60935
OONM 1390 PRINT C "MILES = "CC "KILOMETERS"
DLBE 1400 PRINT:PRINT
GMCK 1410 D6$=""
DFMC 1420 PRINT" SELECT ONE OF THE FOLLOWING:";D6$
PJMK 1430 PRINT:PRINT" 1-ANOTHER CONVERSION"
MCGI 1440 PRINT" 2-RETURN TO 'LENGTH' MENU"
OIEK 1450 PRINT" 3-RETURN TO 'MAIN' MENU"
LLBA 1460 GET D6$:IF D6$="" THEN 1460
IKGK 1470 IF D6$ <"1" OR D6$ >"3" THEN1460
```

```
PJPL 1480 IF D6$="1" THEN 1330
IDJP 1490 IF D6$="2" THEN 250
FGMD 1500 IF D6$="3" THEN 100
HAFG 1510 PRINT" SELECT ONE OF THE FOLLOWING:";D$
NHIL 1520 PRINT:PRINT" 1-ANOTHER CONVERSION"
FBHG 1530 PRINT" 2-RETURN TO 'AREA' MENU"
HJBI 1540 PRINT" 3-RETURN TO 'MAIN' MENU"
JBGC 1550 GET D$:IF D$="" THEN 3170
IHKP 1560 IF D$ <"1" OR D$ >"3" THEN3170
GLCL 1570 IF D$="1" THEN 3030
EMDC 1580 IF D$="3" THEN 100
DKCK 1590 PRINT"[CLR]"
AOGA 1600 PRINT"[RED][CR16]AREA[BLK]"
HAFI 1610 PRINT:PRINT
FGCO 1620 PRINT" 1-SQ CENTIMETERS - SQ INCHES"
BLJN 1630 PRINT" 2-SQ METERS - SQ YARDS"
LLNE 1640 PRINT" 3-SQ KILOMETERS - SQ MILES"
GPJF 1650 PRINT" 4-HECTARES - ACRES"
AJFN 1660 PRINT
KMFN 1670 PRINT" 5-SQ INCHES - SQ CENTIMETERS"
NOMJ 1680 PRINT" 6-SQ YARDS - SQ METERS"
AJND 1690 PRINT" 7-SQ MILES - SQ KILOMETERS"
IANA 1700 PRINT" 8-ACRES - HECTARES"
KCJH 1710 PRINT:PRINT
APDK 1720 B$=""
KGNN 1730 PRINT" SELECT ONE BY PRESSING THE APPROPRIATE[SP2]NUMBER (1-8)";B$
LGBK 1740 GET B$: IF B$="" THEN 1740
NIID 1750 IF B$ <"1" OR B$>"8" THEN 1740
ABEM 1760 ON VAL (B$) GOTO 1770,1950,2130,2310,2490,2670,2850,3030
FKBJ 1770 PRINT"[CLR]"
```


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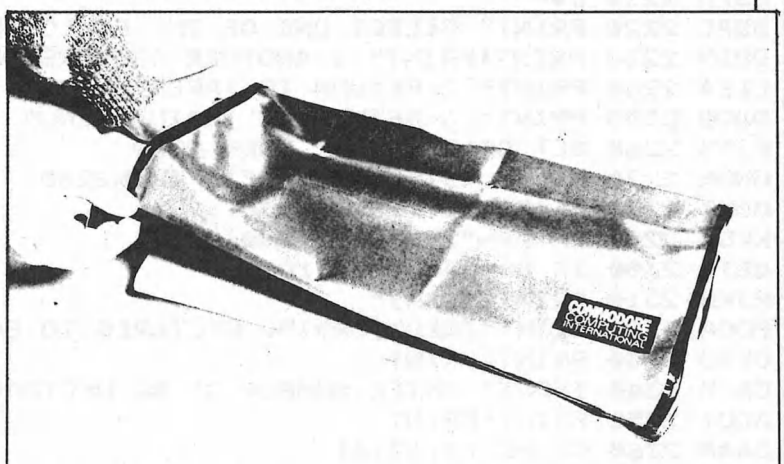

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```
PCAL 1780 PRINT"[RED][CR6]SQ CENTIMETERS TO SQ INCHES[BLK]"
NEAB 1790 PRINT:PRINT
JDGL 1800 INPUT" ENTER NUMBER OF SQ CENTIMETERS";C
AIIC 1810 PRINT:PRINT
IFJN 1820 CC =C *.155
JENE 1830 PRINT C "SQ CENTIMETERS = "CC "SQ INCHES"
FNBL 1840 PRINT:PRINT
MNEE 1850 D$=""
BKKI 1860 PRINT" SELECT ONE OF THE FOLLOWING:";D$
AHID 1870 PRINT:PRINT" 1-ANOTHER CONVERSION"
KADC 1880 PRINT" 2-RETURN TO 'AREA' MENU"
CHJE 1890 PRINT" 3-RETURN TO 'MAIN' MENU"
PFNE 1900 GET D$:IF D$="" THEN 1900
NCMI 1910 IF D$ <"1" OR D$ >"3" THEN1900
KAIO 1920 IF D1$="1" THEN 6610
IBON 1930 IF D$="2" THEN 1590
ABNJ 1940 IF D$="3" THEN 100
GPGK 1950 PRINT"[CLR]"
EHIH 1960 PRINT"[RED][CR9]SQ METERS TO SQ YARDS[BLK]"
LMKD 1970 PRINT:PRINT
LAKK 1980 INPUT" ENTER NUMBER OF SQ METERS";C
KMNL 1990 PRINT:PRINT
NCAM 2000 CC =C *1.19599
EHOO 2010 PRINT C "SQ METERS = "CC "SQ YARDS"
PMIF 2020 PRINT:PRINT
OHFO 2030 D$=""
FLOA 2040 PRINT" SELECT ONE OF THE FOLLOWING:";D$
HHBM 2050 PRINT:PRINT" 1-ANOTHER CONVERSION"
JGOF 2060 PRINT" 2-RETURN TO 'AREA' MENU"
BBED 2070 PRINT" 3-RETURN TO 'MAIN' MENU"
JOGL 2080 GET D$:IF D$="" THEN 2080
GNOH 2090 IF D$ <"1" OR D$ >"3" THEN2080
GBIK 2100 IF D$="1" THEN 1950
IPOL 2110 IF D$="2" THEN 1590
IDNM 2120 IF D$="3" THEN 100
OADI 2130 PRINT"[CLR]"
ONOE 2140 PRINT"[RED][CR7]SQ KILOMETERS TO SQ MILES[BLK]"
KGHG 2150 PRINT:PRINT
AHDB 2160 INPUT" ENTER NUMBER OF SQ KILOMETERS";C
HLND 2170 PRINT:PRINT
JAPP 2180 CC =C *0.386103
PMMB 2190 PRINT C "SQ KILOMETERS = "CC "SQ MILES"
IELO 2200 PRINT:PRINT
OJFH 2210 D$=""
BDAC 2220 PRINT" SELECT ONE OF THE FOLLOWING:";D$
DBDN 2230 PRINT:PRINT" 1-ANOTHER CONVERSION"
LEEA 2240 PRINT" 2-RETURN TO 'AREA' MENU"
DDOG 2250 PRINT" 3-RETURN TO 'MAIN' MENU"
PJPB 2260 GET D$:IF D$="" THEN 2260
OMGK 2270 IF D$ <"1" OR D$ >"3" THEN2260
OGHI 2280 IF D$="1" THEN 2130
KFGA 2290 IF D$="2" THEN 1590
GBIP 2300 IF D$="3" THEN 100
HJKH 2310 PRINT"[CLR]"
POOA 2320 PRINT"[RED][CR9]SQ HECTARES TO SQ ACRES[BLK]"
GFAG 2330 PRINT:PRINT
CAJD 2340 INPUT" ENTER NUMBER OF SQ HECTARES";C
ADOI 2350 PRINT:PRINT
OAAA 2360 CC =C *2.47101
OHFG 2370 PRINT C "SQ HECTARES = "CC "SQ ACRES"
CAOH 2380 PRINT:PRINT
FDNB 2390 D$=""
PEEF 2400 PRINT" SELECT ONE OF THE FOLLOWING:";D$
```

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```
MOBJ 2410 PRINT:PRINT" 1-ANOTHER CONVERSION"
NDKP 2420 PRINT" 2-RETURN TO 'AREA' MENU"
FEAJ 2430 PRINT" 3-RETURN TO 'MAIN' MENU"
CJAL 2440 GET D$:IF D$="" THEN 2440
IHGN 2450 IF D$ <"1" OR D$ >"3" THEN2440
ADNF 2460 IF D$="1" THEN 2310
EHOC 2470 IF D$="2" THEN 1590
LDAI 2480 IF D$="3" THEN 100
NIAP 2490 PRINT"[CLR]"
PBCK 2500 PRINT"[RED][CR6]SQ INCHES TO SQ CENTIMETERS[BLK]"
FGAB 2510 PRINT:PRINT
OGGA 2520 INPUT" ENTER NUMBER OF SQ INCHES";C
ILKE 2530 PRINT:PRINT
AGGA 2540 CC =C *6.4516
FFAL 2550 PRINT C "SQ INCHES = "CC "SQ CENTIMETERS"
NODN 2560 PRINT:PRINT
BGKE 2570 D$=""
AGAB 2580 PRINT" SELECT ONE OF THE FOLLOWING:";D$
FDLH 2590 PRINT:PRINT" 1-ANOTHER CONVERSION"
PBAK 2600 PRINT" 2-RETURN TO 'AREA' MENU"
HGKM 2610 PRINT" 3-RETURN TO 'MAIN' MENU"
HCLL 2620 GET D$:IF D$="" THEN 2620
PCCI 2630 IF D$ <"1" OR D$ >"3" THEN2620
FFGD 2640 IF D$="1" THEN 2490
BEKK 2650 IF D$="2" THEN 1590
AAEH 2660 IF D$="3" THEN 100
LIDM 2670 PRINT"[CLR]"
OHBA 2680 PRINT"[RED][CR9]SQ YARDS TO SQ METERS[BLK]"
FHMG 2690 PRINT:PRINT
KAHF 2700 INPUT" ENTER NUMBER OF SQ YARDS";C
PDJP 2710 PRINT:PRINT
GNIH 2720 CC =C *0.836127
AHHK 2730 PRINT C "SQ YARDS = "CC "SQ METERS"
KGAG 2740 PRINT:PRINT
BIKN 2750 D$=""
HAIC 2760 PRINT" SELECT ONE OF THE FOLLOWING:";D$
CANB 2770 PRINT:PRINT" 1-ANOTHER CONVERSION"
MHOE 2780 PRINT" 2-RETURN TO 'AREA' MENU"
EAEC 2790 PRINT" 3-RETURN TO 'MAIN' MENU"
IIPP 2800 GET D$:IF D$="" THEN 2800
FBGD 2810 IF D$ <"1" OR D$ >"3" THEN2800
PBPB 2820 IF D$="1" THEN 2670
LLAJ 2830 IF D$="2" THEN 1590
POOD 2840 IF D$="3" THEN 100
INEP 2850 PRINT"[CLR]"
EKBG 2860 PRINT"[RED][CR7]SQ MILES TO SQ KILOMETERS[BLK]"
DPGE 2870 PRINT:PRINT
HEMM 2880 INPUT" ENTER NUMBER OF SQ MILES";C
CPBM 2890 PRINT:PRINT
POHL 2900 CC =C *2.58999
BNAJ 2910 PRINT C "SQ MILES = "CC "SQ KILOMETERS"
LIDC 2920 PRINT:PRINT
GFPP 2930 D$=""
PKDE 2940 PRINT" SELECT ONE OF THE FOLLOWING:";D1$
JILJ 2950 PRINT:PRINT" 1-ANOTHER CONVERSION"
CKJP 2960 PRINT" 2-RETURN TO 'AREA' MENU"
KNDJ 2970 PRINT" 3-RETURN TO 'MAIN' MENU"
CEFM 2980 GET D1$:IF D1$="" THEN 2980
JJJC 2990 IF D1$ <"1" OR D1$ >"3" THEN2980
MFDP 3000 IF D1$="1" THEN 2850
LPLD 3010 IF D1$="2" THEN 1590
IDJG 3020 IF D1$="3" THEN 100
```

```
CPMA 3030 PRINT"[CLR]"
MMDC 3040 PRINT"[RED][CR12]ACRES TO HECTARES[BLK]"
LLLO 3050 PRINT:PRINT
IIMJ 3060 PRINT:PRINT
AHEE 3070 INPUT" ENTER NUMBER OF ACRES";C
JILB 3080 PRINT:PRINT
EPPJ 3090 CC =C *0.404678
CDHK 3100 PRINT C "ACRES = "CC "HECTARES"
NCDK 3110 PRINT:PRINT
AJEP 3120 D$=""
EFPH 3130 PRINT" SELECT ONE OF THE FOLLOWING:";D$
LANM 3140 PRINT:PRINT" 1-ANOTHER CONVERSION"
JDIJ 3150 PRINT" 2-RETURN TO 'AREA' MENU"
IOJH 3160 PRINT" 3-RETURN TO 'MAIN' MENU"
MGFI 3170 GET D$:IF D$="" THEN 3170
GNPC 3180 IF D$ <"1" OR D$ >"3" THEN3170
MBPK 3190 IF D$="1" THEN 3030
DPLH 3200 IF D$="2" THEN 1590
PLOJ 3210 IF D$="3" THEN 100
IIDE 3220 PRINT"[CLR]"
OGKL 3230 PRINT"[RED][CR15]VOLUME[BLK]"
PAPC 3240 PRINT:PRINT
ONKM 3250 PRINT" 1-CUBIC CENTIMETERS - CUBIC INCHES"
LDKH 3260 PRINT" 2-LITRES - CUBIC INCHES"
EHMB 3270 PRINT" 3-LITRES - PINTS"
OHNE 3280 PRINT" 4-LITRES - GALLONS"
KPDM 3290 PRINT
OCOF 3300 PRINT" 5-CUBIC INCHES - CUBIC CENTIMETERS"
NAPJ 3310 PRINT" 6-CUBIC INCHES - LITRES"
ODHB 3320 PRINT" 7-PINTS - LITRES"
MHJJ 3330 PRINT" 8-GALLONS - LITRES"
CCDN 3340 PRINT:PRINT
PODE 3350 B$=""
KCLG 3360 PRINT" SELECT ONE BY PRESSING THE APPROPRIATE[SP2]NUMBER (1-8)";B$
CEGC 3370 GET B$: IF B$="" THEN 3370
LBLH 3380 IF B$ <"1" OR B$>"8" THEN 3370
BACA 3390 ON VAL (B$) GOTO 3400,3580,3760,3940,4120,4300,4480,4660
HFPA 3400 PRINT"[CLR]"
DJGD 3410 PRINT"[RED][CR3]CUBIC CENTIMETERS TO CUBIC INCHES[BLK]"
HILO 3420 PRINT:PRINT
LIJO 3430 INPUT" ENTER NUMBER OF CUBIC CENTIMETERS";C
BOFA 3440 PRINT:PRINT
IOEM 3450 CC =C *0.0610237
IMPJ 3460 PRINT C "CUBIC CENTIMETERS = "CC "CUBIC INCHES"
CNCH 3470 PRINT:PRINT
NBLG 3480 D$=""
MILO 3490 PRINT" SELECT ONE OF THE FOLLOWING:";D$
AJNJ 3500 PRINT:PRINT" 1-ANOTHER CONVERSION"
DMNG 3510 PRINT" 2-RETURN TO 'VOLUME' MENU"
MLNN 3520 PRINT" 3-RETURN TO 'MAIN' MENU"
ENBC 3530 GET D$:IF D$="" THEN 3530
IPGM 3540 IF D$ <"1" OR D$ >"3" THEN3530
HJGC 3550 IF D$="1" THEN 3400
ANEO 3560 IF D$="2" THEN 3220
BPPH 3570 IF D$="3" THEN 100
ACCO 3580 PRINT"[CLR]"
AIKG 3590 PRINT"[RED][CR9]LITRES TO CUBIC INCHES[BLK]"
AAIF 3600 PRINT:PRINT
PLML 3610 INPUT" ENTER NUMBER OF LITRES";C
NNCA 3620 PRINT:PRINT
PKMC 3630 CC =C *61.024
IEHH 3640 PRINT C "LITRES = "CC "CUBIC INCHES"
```

```
FFBM 3650 PRINT:PRINT
CDGH 3660 D$=""
LODN 3670 PRINT" SELECT ONE OF THE FOLLOWING:";D$
MFKE 3680 PRINT:PRINT" 1-ANOTHER CONVERSION"
MDBK 3690 PRINT" 2-RETURN TO 'VOLUME' MENU"
OJHI 3700 PRINT" 3-RETURN TO 'MAIN' MENU"
IILH 3710 GET D$:IF D$="" THEN 3710
POCD 3720 IF D$ <"1" OR D$ >"3" THEN3710
CLAG 3730 IF D$="1" THEN 3580
FOAG 3740 IF D$="2" THEN 3220
PNKE 3750 IF D$="3" THEN 100
GCBN 3760 PRINT"[CLR]"
HFHC 3770 PRINT"[RED][CR12]LITRES TO PINTS[BLK]"
KENM 3780 PRINT:PRINT
BFDJ 3790 INPUT" ENTER NUMBER OF LITRES";C
HIFP 3800 PRINT:PRINT
OIEK 3810 CC =C *2.11344
DPGA 3820 PRINT C "LITRES[SP2]= "CC"PINTS"
ELCI 3830 PRINT:PRINT
PFIC 3840 D$=""
DIFA 3850 PRINT" SELECT ONE OF THE FOLLOWING:";D$
FCCI 3860 PRINT:PRINT" 1-ANOTHER CONVERSION"
LCIN 3870 PRINT" 2-RETURN TO !VOLUME' MENU"
PHMF 3880 PRINT" 3-RETURN TO 'MAIN' MENU"
AEIE 3890 GET D$:IF D$="" THEN 3890
```

Continued next month

★ Program Submission Procedure ★

DO NOT submit any program or routine that you do not either own or have authority to do so.

ALWAYS include your name, address and date on all material sent.

NEVER use staples, use paperclips if necessary.

If you are using TAPE save the program at least TWICE on each side. DO NOT USE TURBO SAVE SYSTEMS.

If you are using DISK save the program at least twice and call the second program BACKUP.

IDENTIFY your tape/disk with: your name and address, the program name and WHAT COMPUTER it is for.

PLEASE do not submit hand-written work, unless it is unavoidable. *** Note *** you can always write your instructions in the form of a computer program, eg 1 PRINT 'your text' etc.

INCLUDE a short statement of what your program is supposed to do.

IF YOU USE A WORDPROCESSOR supply a standard ASCII file of the article, this allows us to load it into our standard wordprocessors.

INCLUDE the following STANDARD header on all programs. Even if your program is in multiple parts, include this information on each part
(this will be stripped off prior to publication).

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ADDRESS
ADDRESS
POSTCODE
COUNTRY
TELEPHONE No. (if poss).
COMPUTER
DOS/ROM TYPE
PROGRAM NAME

ALWAYS ensure that disks are well packed, Use a commercial disk mailer or at least packed between two pieces of thick cardboard or rigid plastic.

MARK the package MAGNETIC MEDIA DO NOT BEND OR EXPOSE TO MAGNETIC FIELDS in BOLD letters on BOTH sides.

Please allow at least 8 weeks for acknowledgement as all programs have to be thoroughly tested and put into a suitable format.

Enclose a self-addressed stamped envelope or package if you would like your program to be returned.

Overseas submissions can use IRC's International Reply Coupons.

* Programming Tips *

If you can, use CHR$(x) type commands instead of graphic characters.

Renumber your program in a standard form, most readers use auto number utilities to ease typing in.

Try to keep instructions within the program fairly short. You can expand on them within the text if necessary

TEST YOUR PROGRAMS..better still get a friend to test them for you.

IF YOUR PROGRAM CONTAINS MACHINE CODE:
Please use DECIMAL data statements, NOT HEX for the BASIC loader. Keep the same number of data statements on each line (MAX 14) and use the three digit format if possible. eg 000,010,243,001 etc.

S-ENTRY

```
100 REM
110 REM********************************
120 REM*                              *
130 REM*          CCI S-ENTRY         *
140 REM*                              *
150 REM*       FOR THE C64 & C128     *
160 REM*                              *
170 REM*(C)1989,A.ESKELSON & G.CATTLEY*
180 REM*                              *
190 REM********************************
200 REM
210 M1=256*PEEK(179)+PEEK(178):C8=65281:C9=C8-2:FA=250:FB=251:FC=252
220 POKE C8,00:REM IF 128 SET BANK 0
230 MC=M1+9:CC=0:FOR I=0 TO 61:READ ZZ
240 CC=CC+ZZ:POKE M1+I,ZZ:NEXT I
250 REM DATA FOR CRC
260 DATA 169,000,133,250,133,251,133,252,096,169,000,133,252,162,008,165
270 DATA 250,042,038,253,042,042,042,042,042,069,253,133,253,165,250,069
280 DATA 253,133,253,165,251,042,042,042,069,253,133,253,038,252,042,069
290 DATA 253,106,038,251,038,250,202,208,214,166,251,165,250,096
300 IF CC<>9069 THEN PRINT"ERROR IN CHECKSUM DATA":STOP
310 REM
320 REM TEST FOR C128/C64
330 IF M1=2816 THEN C64=2:SA=3072:GOTO 360
340 IF M1=828 THEN C64=1:SA=49152:GOTO 360
350 PRINT"ERROR NOT C64 OR C128 ?":STOP
360 READ TC:EQ=0:EA=SA:SYS M1
370 HB=INT(SA/256):LB=0
380 REM START OF LOOP
390 READ DA$:REM READ THE DATA
400 IF DA$="-9999" THEN 480:REM FINISHED ALL THE DATA
410 DA=VAL(DA$):PRINTSA;CHR$(145)
420 IF LEN(DA$)<>3 THEN 450
430 POKE SA,DA:SA=SA+1
440 POKE MC+1,DA:SYS MC:GOTO 390
450 A%=PEEK(FA):X%=PEEK(FB):CK=A%*256+X%
460 IF CK<>VAL(DA$) THEN EQ=1:GOTO 480
470 GOTO 390
480 IF EQ OR (CK<>TC) THEN 510
490 POKE FA,LB:POKE FB,HB:POKE FC,C64:SYS EA
500 PRINTCHR$(147);"S-ENTRY ACTIVE. TYPE '@NEW' TO CLEAR LOADER":END
510 PRINT"LINE/DATA ERROR IN LINE";
520 PRINT PEEK(66)*256+PEEK(65):END
530 DATA 44232
540 DATA 024,165,250,105,028,133,176,165,251,105,002,133,177,169,000,170,48900
550 DATA 168,024,177,176,133,254,200,177,176,101,251,133,255,200,177,176,00903
560 DATA 201,255,240,008,024,101,251,129,254,200,208,229,024,165,250,105,18744
570 DATA 112,133,176,165,251,105,002,133,177,024,165,250,105,126,133,254,17887
580 DATA 165,251,105,000,133,255,162,000,164,252,177,176,072,161,176,240,44466
590 DATA 017,168,104,145,254,165,176,024,105,003,133,176,144,002,230,177,32098
600 DATA 208,230,104,169,000,141,005,003,169,126,141,004,003,169,000,133,49661
610 DATA 252,173,038,003,141,152,002,173,039,003,141,153,002,096,160,000,49456
620 DATA 132,251,132,250,132,180,132,254,132,253,185,000,002,201,032,208,52892
630 DATA 003,200,208,246,201,095,208,017,072,169,171,141,038,003,169,002,22812
640 DATA 141,039,003,032,154,002,104,208,053,072,173,152,002,141,038,003,55274
650 DATA 173,153,002,141,039,003,104,201,064,240,035,201,033,240,013,201,41233
660 DATA 038,208,033,076,068,001,173,141,002,208,251,096,169,067,141,005,20351
670 DATA 003,169,013,141,004,003,169,000,153,000,002,076,013,067,032,128,63881
680 DATA 003,024,144,247,165,252,240,007,169,000,133,252,024,144,236,132,15406
690 DATA 252,152,024,105,004,168,185,000,002,240,007,032,211,001,200,208,05629
700 DATA 245,000,164,252,162,001,185,000,002,072,169,032,153,000,002,104,21893
710 DATA 056,233,065,024,010,010,010,010,133,252,200,185,000,002,072,169,54075
720 DATA 032,153,000,002,104,056,233,065,041,015,005,252,213,250,208,011,11281
730 DATA 200,202,016,210,169,255,133,252,076,209,077,169,000,133,252,162,54224
740 DATA 022,108,000,003,162,001,181,045,149,176,202,016,249,141,001,255,56924
750 DATA 160,000,132,251,132,250,132,180,132,254,132,253,160,001,177,176,45691
760 DATA 240,040,200,177,176,032,211,001,200,177,176,032,211,001,200,177,58968
770 DATA 176,240,007,032,211,001,200,016,246,000,160,000,132,254,177,176,22791
780 DATA 170,200,177,176,134,176,133,177,208,210,160,000,140,000,255,185,63767
790 DATA 154,001,240,022,032,210,255,200,208,245,083,045,069,078,084,082,26008
800 DATA 089,032,067,079,068,069,032,061,032,000,162,001,181,250,072,041,42873
810 DATA 240,074,074,074,074,024,105,065,032,210,255,104,041,015,024,105,62214
820 DATA 065,032,210,255,202,016,229,141,003,255,169,000,141,000,002,076,51028
830 DATA 222,000,096,201,034,208,008,072,165,254,073,255,133,254,104,201,08627
840 DATA 032,208,004,036,254,016,052,133,180,169,001,072,165,251,041,128,08832
850 DATA 042,038,253,165,251,041,008,106,106,106,069,253,133,253,165,251,26391
860 DATA 069,253,133,253,165,250,042,042,042,069,253,133,253,038,180,042,59214
870 DATA 069,253,106,038,250,038,251,104,010,144,208,096,100,000,000,197,16654
880 DATA 000,001,253,000,001,103,001,001,109,001,001,117,001,001,145,001,10659
890 DATA 001,209,001,000,118,000,002,124,000,002,159,000,002,165,000,002,52822
900 DATA 172,000,002,178,000,002,211,002,002,001,003,002,010,003,002,019,14849
910 DATA 003,002,035,003,002,050,003,002,028,003,002,231,002,002,222,002,52909
920 DATA 001,047,003,002,194,002,002,200,002,002,042,003,000,255,255,255,04528
930 DATA 079,165,067,084,124,013,094,124,013,095,165,067,201,043,045,097,06351
940 DATA 115,128,098,000,003,187,138,209,188,164,077,073,141,211,074,002,22835
950 DATA 000,000,064,064,064,064,064,032,000,000,160,000,132,251,132,250,37171
960 DATA 132,180,132,254,132,253,132,177,132,176,096,134,182,132,181,201,46369
970 DATA 013,240,054,166,177,208,037,201,058,176,038,201,046,208,016,072,22106
980 DATA 173,152,002,141,038,003,173,153,002,141,039,003,104,208,018,164,50064
990 DATA 176,153,146,002,230,176,201,032,208,002,230,177,032,211,001,169,15787
1000 DATA 001,166,182,164,181,108,152,002,096,164,177,240,244,169,002,072,30286
1010 DATA 168,136,185,250,000,072,041,240,074,074,074,074,024,105,065,032,48296
1020 DATA 225,002,104,041,015,024,105,065,032,225,002,104,074,144,224,169,27482
1030 DATA 061,032,225,002,169,000,133,176,164,176,185,146,002,201,032,240,17276
1040 DATA 007,032,225,002,230,176,016,240,032,198,000,169,013,032,154,002,25087
1050 DATA 076,225,002,255,44232,-9999
```

continued from page 93

C64/128

BASIC COMMANDS

S-ENTRY intercepts several vectors in the operating system, and because of this the normal basic commands are not available.... don't worry... you can still use them by prefixing the command with the @ symbol, so SAVE would become @SAVE etc.

NOTE do not use any DOS wedge, or you will confuse S-ENTRY.

S—ENTRY DISABLE

Before you run any programs that you have entered, S-ENTRY MUST BE DISABLED. Enter an ! on its own and S-ENTRY will be removed from memory and the normal operating system restored. REMEMBER ALWAYS SAVE A PROGRAM BEFORE YOU RUN IT!

MISSING LINES

In order to provide you with a flexible system, S-ENTRY only checks on a line by line basis. So if you miss out line 540 say, S-ENTRY will NOT report an error.

This may sound odd, but it does allow you to enter part of the program, then save it and come back to it at a later date. This is also helpful if you and several friends are splitting up the job of entering a large program, each person will be able to say that what has been entered is correct.

To make sure that you have the entire program, entered correctly Enter type '&' symbol on its own. S-ENTRY will then calculate the S-ENTRY code for the program in memory, you can compare this with the Final S-ENTRY code printed at the end of the listing.

ADVANCED USE

If you think that you are good enough not to use the S-ENTRY system, you can simply enter the normal basic lines after the S-ENTRY code. But what if you get it wrong? Well S-ENTRY has a command that will produce a summary of the S-ENTRY code and the line number in memory, you can then compare this with the published S-ENTRY codes and thus track down the problem. This command is ‹—LIST you can pause the list by using the Shift/Shift Lock keys. The command will also accept a line number range, ie 100-200 or 200— etc.

The ONLY difference that S-ENTRY makes to the published listing is the addition of the four character code before the line number, and the addition of the Final S-ENTRY code at the end of the listing.

S—ENTRY COMMAND SUMMARY

&	Calculates the S-ENTRY code for the entire program in memory.
@	Prefix to a basic command ie @DSAVE or @LOAD
!	Remove S-ENTRY
‹—LIST	Display S-Entry code summary, use shift/shift lock to pause.

YOU MUST

1. Use EXACTLY the same line numbers.
2. Enter the program exactly as printed, including all REMs.
3. Use EXACTLY the same commands, FULL command names MUST be used, ie '?' cannot be used instead of PRINT.
4. Remember to convert the easy enter codes ie [SP9] means type 9 spaces.
5. Type anything between " " (quotes) EXACTLY as published.

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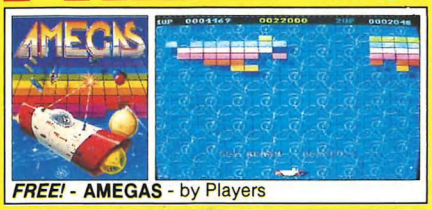

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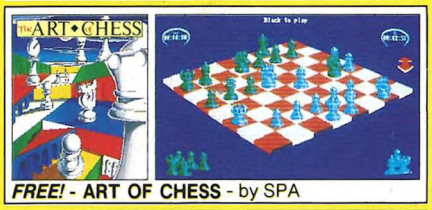

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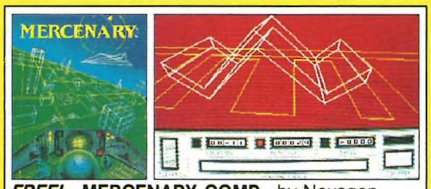

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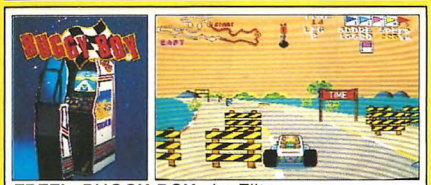

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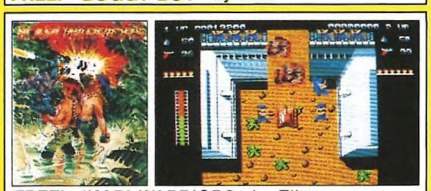

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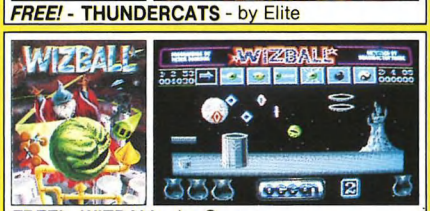

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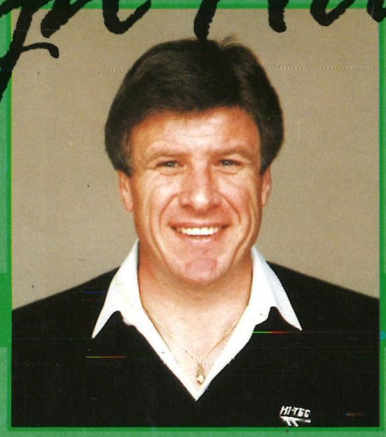

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